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ADDRESSES.

ADDRESS ON DIETETICS.

Delivered at the Thirty-ninth Annual Meeting of the American Medical Association, May, 1888.

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The growing importance of and interest in dietetics would seem to be a sufficient justification for the action of the American Medical Association in appointing a committee to report on that subject at this session.

Through lack of acquaintance it was impossible to name a committee that would comprise all, or even a large number of, persons especially fitted for the work. The embarrassment from that cause has been made less through correspondence with many physicians in different sections of the country, with the result of securing the services of several who are willing to act, not to formulate an exhaustive report at this time, but to give aid and encouragement to a more complete organization by which the subject may be more systematically presented in the future. But, even with this gratifying success, your committee feels that very many able men are, through no discourtesy, not on its roll of membership. On account of these hindrances organization was impracticable, and we come before you as a preliminary committee with a preliminary report.

We respectfully recommend that the Association take such action at this session as shall insure a continuance of the work thus begun, either by the organization of a large special committee, or by the establishment of a Section on Dietetics.

Food and drink have ever held the highest place in human affairs. As populations increase and communities advance in culture, alimentation becomes more diversified, while tastes, habits and customs evolve an almost endless variety of foods, drinks, cooking, eating and drinking. In savage and pioneer life the chief concern is how to get food; with highly civilized people, but especially with Americans, who revel in plenty, it is not so much a question of how to get food as how to cook, and how and what to eat and drink, as well as what to avoid. With the savage it is feast or famine, with starvation as the chief menace to vigor and life; with the civilized it is generally plenty, but with loss of vigor, or disease, or premature death as the frequent penalty. The early loss of the teeth, contracted jaws, dyspepsias and diseases of nutrition constitute the constant menace to the luxuriously fed American man or woman. Thinking Americans are beginning to realize their peril, and to carefully consider the questions how to cook, and how and what to eat and drink that shall secure the greatest degree of comfort, the highest vigor and the longest life. Thus from forced observation and experience was dietetics born, and, based as it is on the law of self-preservation, it is destined to live and grow into an intensely practical branch of knowledge.

From this start in necessity, in which empirical generalities constituted the chief stock in trade, have been rapidly evolved the principles of dietetics, now shorn of much of its empirical crudities, and, although still incomplete, it stands to-day in the very front ranks of medical art for accuracy, efficiency and importance.

Dietetics has joined hands with organic chemistry to solve the problem, What is the pabulum of physiological life, and what are its relative and component elements? From that department of scientific research we now know accurately the kinds and amounts of the several food elements that will maintain human life in vigor from the cradle to old age, and under all vicissitudes and conditions.

Dietetics has joined hands with physiology to more clearly elucidate the occult functions—digestion, assimilation and nutrition, the waste and repair of vegetable and animal tissues. Where once it was believed that digestion was a simple and single process, it is now known to be highly complex in its processes, and consisting of at least three kinds, differing in the manner of doing and the kind of work done. By this accurate knowledge we are enabled to so arrange the work that the best results may be had. We know that inharmonious action of the three kinds of digestion not only provokes disease of the digestive organs, but also supplies the economy with impoverished pabulum, unfitted to maintain normal nutrition, or with a rabble of vicious products that poison the system with gout, rheumatism, neurotic and skin affections, and other maladies until lately

never suspected of being connected with disordered digestion.

Dietetics has joined hands with the cook, and raised her from the scullery to the position of the artist of the noblest of all arts. The cook is rapidly learning that cleanliness is next to godliness, and that tidiness is the religion of housekeeping. Wives and mothers are learning, what should have been learned long ago, that pleasing the palate is sweeter than pleasing the eye or ear, that properly cooked food is the best health preserver, the best health restorer, and a powerful social and moral agent.

Dietetics has recently taken another step. It has joined the kitchen with the public schools. The maidens who are soon to be the mothers of this nation are learning therein that their loved ones at home will look more proudly on the kitchen than on the drawing-room, and that the urn simmering for tea on the domestic hearth makes sweeter music than the pianoforte. Dietetics is teaching that tidiness in the dining-room—the snow-white cloth, the smoking viands prepared by the loving hands of a dimpled, white-aproned wife, will keep the husband from the grogshop, or reclaim him if he ever went there, with a thousand-fold more power than all the temperance sermons ever preached.

Dietetics has taken the American by the hand, and is showing him how he may escape from the thraldom and disgrace of our National curse, dyspepsia. It has long been charged that dyspepsia is a prevalent malady in America. This charge has never been denied, as it never has been proved. It is time we were finding out the exact truth of the charge. The charge is probably true, and we must begin to look the truth square in the face. If we are a nation of dyspeptics — and probably we are—then consequences the most dreadful—no less than the extinguishment of our race, threaten us. The medical profession of this land, if actuated by no other motive than patriotism, should begin investigating the evil, its cause, and the definite and effective plan for its arrest. The people's attention must not only be called to the consequences of dyspepsia to the individual, but they must be aroused to the awful fact that, by the laws of heredity, the dyspepsias of one generation will crop out in the degeneration of the offspring; that neurotic diseases, tuberculosis, drunkenness, and crime itself, may, and that some of them will, entail themselves on the child as the legacy of a dyspeptic father or mother. Americans must be taught that no nation of dyspeptics can long survive as against the aggressive competition of robust nations.

Dietetics is taking the physician in hand and leading him into fresh and richer fields. The route of his retreat from the moss-grown domains of custom and prejudice is littered with lancets, and blisters, and antimonials and mercurials. It is found to be easier and more profitable to lead a patient back to health by the food instead of the drug route. Not that drugs or lancets should or will be dispensed with as remedial agents in many conditions of disease, but that their employment is much less demanded than was formerly thought possible. Enlightened and experienced physicians are coming more and more to depend on dietetics and sanitation, and on drugs and lancets less. Dietetics not only reveals the wonderful resources of alimentation in pathological conditions, but it also, while narrowing the sphere of drugs, more clearly defines their mode of action, makes plainer their indication, and makes them more efficient. It may be confidently claimed that he who relies least on drugs has the greatest confidence in them. This seeming paradox is explained away when we remember how often drugs fail when given exclusively or promiscuously, and how common their success when conjoined with suitable regimen. Again, the proper supply of nutrients is the all-important object in nearly all cases of disease; in many cases alimentation is all that is required, while drugs may perturb; in other cases wherein drugs are indicated they are of secondary importance, to correct some incidental symptom. In a very few cases, simple in form and of transient duration, drugs alone are required. In this *rationale* of modern physic, medicines have become not only subsidiary, but also come to possess a specific relation, not to the disease *per se*, but to the disease symptoms. Thus, a drug may reduce pyrexia, *a disease symptom*, and is therefore a specific for that special condition, but its use ends there, as should its employment, while alimentation is the beginning, the middle, and the end—the *vis preservatrix* in the treatment of all diseases.

Medicines used in this way rarely disappoint and, what is nearly as good, they rarely do harm. The practitioner who thus employs them will have the greatest confidence in their ability to do the work required. Many families in this land, and their number is yearly increasing, are content to allow their physicians to treat their maladies by rest and dieting, to the more or less exclusion of drugs, from having experienced the gratifying success of such a mode of treatment. As drugs drove the lancet from the field, so will rational dietetics restore bleeding to its legitimate place, and limit the usurpation of medicines, and both will be the servants, not the masters, of alimentation and nutrition.

Perhaps in no other class of maladies is the reliance on alimentation so apparently remedial as in the malnutrition and diseases of infancy and childhood. The mortality of children under 1 year of age is frightful and criminal; frightful from the large proportion of deaths, and criminal because nine-tenths are from preventable causes. It is believed that a large majority of the cases of

sickness among children, especially during the summer months in cities, are caused by overheat, bad ventilation, improper food and faulty feeding, and the prevalent opinion is probably correct. But in the multiplicity of causes precision is impossible. All these causes play parts in the terrible drama, but too little is known of the exact influence of each cause separately considered. Of them all it is almost certain that improper food and overfeeding, especially in cities during the hot weather, are the two which preponderate.

There are two classes of people that need looking after: the first is the vendor of unwholesome milk. This class must be taken in charge by the strong arm of the law. Milk kept in foul vessels, watered milk, adulterated milk, and milk from wretched cows chained up all their miserable lives in dark stables and fed on brewery slops, slay annually thousands and thousands of helpless babes in our cities. Such milk is unfit for any purpose, and it should be kept out of the market. Those who vend such milk are deliberate murderers, and they should meet with the punishment commensurate with their cowardly crime. The other class consists of the mothers and nurses, who will persist in overfeeding babes, dreading starvation, ignoring the fact that babes need water, not milk, when fretful and feverish from indigestion. The crime of this class is ignorance, and they must be educated out of their pernicious practice. Thousands of children may be saved by lessening the amount of food during the heated term.

The questions, What is the best substitute for human milk, and what is the best food for weakly and invalid children? although more frequently asked than formerly, still remain *sub judice*, or at least the solution of the questions is not generally accepted in practice. Accurate knowledge in regard to them must be given by some authoritative body.

Cow's milk, sometimes slightly modified, seems to be the most rational and favored as the substitute for the mother's milk. This generally accepted belief is based partly on experience, and partly on the physiological precept that there can be no digestion of starch foods prior to dentition. But experience and precept are sometimes both upset in cases of infants who do not digest milk but who do digest modified starch foods. In the absence of precise knowledge on the subject of infant foods and feeding, we go on treating infantile maladies with an empiricism redeemed only by the common sense and experience of the individual practitioner. The aggregated and formulated experience of the whole profession is wanting, while tradition, united with straggling experience, serves as a fickle indicator rather than a reliable guide in the dietetics of infancy and childhood.

Among the besetting evils of Americans are rush, overwork, great plenty and variety of food, great food waste, bad cooking and badly cooked food, hurried eating, foul water supply to cities, and dram-drinking. Any one of these evils tends to the impairment of health, and all of them aggregated are sure to result in the deterioration of the race. The duties of the medical profession have so widened that it is become to a large extent the custodian of public health. The world cannot produce such a field of useful, necessary work as lies before the profession in America—the work of arresting the decay of the American race. Can this Association, whose grand function it is to crystallize medical thought and direct medical art in this country, longer refuse to lend its authority to warn our people of the danger ahead, and to direct its powerful organization against the evils which, if not arrested, will result in disaster to our people and our Nation?

When the first submarine cable was laid a scientist predicted that some deep sea animal would turn up to eat the covering of the cable. The prediction was verified. Dietetics already has its parasites. To hear these barnacles prate of foods, and peptones, and artificial digestors, one is led to believe that dyspepsia will soon be numbered with the lost tribe. Their advertisements are to be found in many respectable journals. The wares they offer are generally a discredit to the few physicians who have, perhaps thoughtlessly, praised them, and the whole business—wares, journals, and praising doctors—brings discredit on dietetics. On this subject the American Medical Association must exercise its authority in the most positive manner. Not only is the public wronged by the avalanche of "food" products on the market, but the busy and honest practitioner, who has no time to investigate, nor has he authority on the subject, is at the mercy of these vendors of "physiological foods," "chemical foods," invalid foods," *ad nauseum*, that flood our drug-stores. What is wanted is thorough investigation of these often worthless compounds before a tribunal of competent men who can voice the truth with that authority which will command attention and confidence.

Is there danger of going to extremes in dietetics? Is it possible to attach too much importance to digestion and nutrition? Yes; a few people will ride nothing but a hobby-horse. But dietetics will not be carried to extremes; it will, however, have many radical disciples. From Hippocrates down there has been a constant conflict between ultraism and conservatism in medicine, and the strife will continue until medical science ceases to progress, and until the art is exact. If the conservatives have fought more stubbornly, the radicals have won more victories. The disciples of Jenner won a brilliant success over their jeering opponents; the ultra bacteriologists are likely to defeat the conservatives; Listerism is more reliable than former methods, and Lister is an extremist.

Dieticians will incline to ultraism, but the principles of dietetics cover too much ground to ever assume specialty, or build up an esoteric class of practitioners. Dietetics is too broad for the specialist. Ultraism is not always an evil nor its practice a sin. All great medical pioneers have been regarded as extremists in their day. The ultraism of a generation ago is the conservatism of to-day.

And what is the ultraism of dietetics? Briefly, that digestion and nutrition constitute the all in all of animal life; that many forms of disease, as gout, rheumatism, Bright's disease, many neuroses, skin diseases, and other affections, are but manifestations of faulty digestion or malnutrition; that maladies belonging to the above class can only be successfully treated by judicious alimentation, while drugs hold a very subordinate place in their cure. This kind of ultraism will grow and deserves to grow. Many advanced thinkers believe that phthisis pulmonalis cannot exist without antecedent indigestion, followed by faulty nutrition; that the lung lesion often begins as dyspepsia, and that no case of consumption was ever cured except by restoring digestion and nutrition, and that the more complete their restoration the more thorough the cure of the lung disease. With all the investigations, lasting through centuries, seeking for a drug to cure consumption, and with all the various claims that have been made for medicines which held the boards for longer or shorter periods as specifics in consumption, not one of them remains to-day as a remedy for that affection, and, although ignorant faith may cling to some of the medical myths of the past, not an enlightened physician in this land but what selects his remedies more to restore digestion and nutrition than for any direct effect they may have on the disease of the lungs.

There is one abuse which has crept into modern practice under the seeming sanction of dietetics, and which calls for loud protest. Allusion is had to what may be termed *vicarious digestion*. This term applies to all methods by which the digestive organs are relieved of all or a part of their work, and includes the employment of all bland and easily digested foods, malted foods, predigested foods, and food per rectum. This practice, so efficient and necessary in acute stages of disease, and in all conditions where there is suspension of digestion, is pernicious when, as it often is, too long continued, or employed in cases where the digestive act is even moderately well performed. The pabulum supplied by vicarious digestion is not, it cannot be, endowed with that robust vitality belonging to the product of normal digestion, and hence can supply only a low grade of nutrition, sufficient it is true to bridge the system over a short interval of interrupted digestion, but lacking the vigor to sustain a strong and active state of health. Again, if vicarious digestion is too long continued, or employed unnecessarily, paupers are made of the digestive organs. Our teeth are going because there is no longer need of that vigorous mastication peculiar to an age of crude cookery, and, if we persist in carrying vicarious digestion to the extent threatened, the stomach will lose its function and waste away toward the state of a rudimentary organ. The only way to keep the stomach strong is to force it to perform its legitimate work.

Vicarious digestion may become a habit if indulged in for too long a time; the papoid habit may become as enslaving and as destructive as the opium habit. The tissues will starve on cells that enter over the wall instead of by the appointed portals of vital action. Such nutrition does not stay, the puny cells have not received the stamp of genuineness and every emunctory is up in arms to turn the rascals out,

Food and drinks, feeding and drinking, would seem to exert a wonderful influence over the habits of thought, the customs and manners of races of men, and their diseases also. By searching we might find that the egotism, conservatism and tenaciousness of the Englishman are as much the results of his beef and ale as is his gout; that the sparkling *bonhomie* of the Frenchman comes from his dainty *cuisine* and bubbling champagne, as does also his mercurial disposition and his passionate life; that the maccaroni and fortified wines bestow song and art on the Italian, as does beer and *sauer kraut* stamp solidity and patriotism on the German. America, ever able to give the world a lesson, contributes rush and dyspepsia as the product of hog and whisky.

CONSIDERATIONS ON THE ANATOMY, PHYSIOLOGY, AND PATHOLOGY OF THE CÆCUM AND APPENDIX.

Read in the Section on Surgery, at the Thirty-ninth Annual Meeting of the American Medical Association, May, 1888.

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Having been requested to present a paper on this very comprehensive subject, I believe to be best enabled to meet the requirements expected by considering the subject in its anatomical, physiological and pathological aspects, since here as elsewhere, a knowledge of the first of these is a pre-requisite to the understanding of vital processes, normal and abnormal. To enter into anatomical details requires no apology here, since this is the Section of Anatomy as well as that of Surgery.

Anatomy.—Strange as it may appear, the topography of the cæcum, the vermiform appendix, and the ileum is greatly misapprehended, not only by the profession as a body, but by most

anatomical writers. All agree that the cæcum, or caput coli, is a blind pouch about three inches in diameter, two and a half inches in length, and the widest part of the large intestine. In the relations of the cæcum to its serous coat, writers again agree with almost unanimity that "the cæcum is covered by peritoneum as a rule, in front and on the sides, and that the posterior surface is connected to the iliac fascia by loose connective tissue." Little as this description accords with the real it has become, as Mr. Treves has said, an "anatomical property," to be handed down from generation to generation, and to be utilized from time to time by writers on perityphlitis, though they be as observant as Oppolzer[1], Bartholow[2], Eichhorst[3], or Pepper.[4]

In reality, the cæcum is with rare exceptions, completely surrounded by peritoneum from the ileo-cæcal valve to its apex. Bardeleben[5] came to this conclusion as long ago as 1849, from the examination of 160 bodies. Twelve years later Luschka[6] again insisted on the serous investment of the cæcum. Hyrtl[7] followed in the same path, and in the examination of 100 bodies Treves[8] never found the posterior surface of the cæcum uncovered by peritoneum or attached to the iliac fascia by areolar tissue. In two out of sixty-three bodies, both adults, which I examined in regard to this, I found the cæcum invested only in front and laterally. This peritoneal investiture applies not only to the cæcum, but often as well to the lower inch or two of the ascending colon. Special examination with reference to this point in hospital, mortuary and dissecting room has convinced me that the recto-cæcal inflammation or perityphlitis of Oppolzer, and the perforations of cæcum or appendix without involvement of the peritoneum are alike physical impossibilities in the vast majority of cases. What shall then be said of the suggestion and practice of Bugge[9] to attack perityphlitic abscesses from the loin to avoid injuring the cæcum, or of the enthusiastic advocacy of Burchard[10] of lumbar typhlotomy in acute perforating typhlitis.

From the posterior internal aspect of the cæcum, as a rule, from half an inch to an inch from its base, springs the appendix. This lateral position is altogether the result of unequal development; early in embryonic life the appendix and the cæcum form one continuous pouch. Towards the fifth or sixth week the cæcum appears at the side of the rudimentary intestinal loop, in the form of a short and broad dilatation. While it grows in length, its width does not continue uniform, it being widest at the base where it joins the colon and narrow below. The differentiation between the upper third and lower two thirds of the cæcum does not commence till the tenth week, and as it progresses the former rapidly widens, while the latter does not greatly increase in calibre. The appearance is thereby presented of a long narrow tube hanging from and continuous with the apex of the projection from the intestinal loop; cæcum and appendix are thus formed.

They are continuous with each other in the axis of the former, and in the first-half of embryonic life are cylindical like the small intestine. It is only in the sixth or seventh month that three ampullæ or sacculiform in the cæcum form the development of the longitudinal muscular fibres in bands or tæniæ. Three in number, they descend from the colon, and meet at the apex of the cæcum, that is at the root of the appendix; one lies on the side of the bowel into which the ileum enters, a second is placed on the posterio-external aspect of the colon and cæcum, whilst the third and most distinct runs along the anterior aspect of the gut. By the equidistant disposition of these bands in the fœtal cæcum it is divided into three fairly equal parts. This fœtal or conical type of cæcum may continue throughout life. Treves found it twice in 100 examinations. In a second type of cæcum the apex appears imbedded between two saccules, whereby the conical appearance is substituted by a more quadrilateral shape. This appearance Treves[11] found in only three subjects. "What usually occurs is that the part of the cæcum to the right of the anterior band grows quite out of proportion to that on the left Moreover the anterior wall of the cæcum becomes more developed than the posterior. As a result the true apex of the cæcum is turned more and more to the left, until at last it is placed in close proximity to the ileo-cæcal junction, and can only be recognized by noting the point of origin of the appendix. The highly developed part to the right of the anterior band becomes so dependent and prominent that it forms a new or false apex to the cæcum, and it is to this projection that the anatomical term apex is usually applied."

The vermiform appendix is not so much a wanderer as is often represented; when examined it maintains pretty constant relation to the cæcum, the ileum and mesentery. In the majority of examinations made by me, the process was hidden from view behind the cæcum, and could be studied *in situ* only by drawing the cæcum aside. Resting for an inch or more of its course behind the latter it generally continues upwards behind the ileum and beneath the lower surface of the mesentery. In its upward course the appendix inclines to the left so that, as a rule, its tip points towards the spleen. In a much smaller proportion of cases the process lies perpendicu-

[1] Allgem. Wien. Ztg., 1858, xx and xxi.
[2] Americ. Journ. Med. Sc., viii, p. 354.
[3] Real Encyclop. Art. Typhlitis.
[4] Trans. Med. So. Penn., 1883, p. 227.
[5] Virchow's Arch., Bd., ii, p. 584.
[6] Virchow's Arch., Bd., xxi, p. 284.
[7] Topog. Anat.
[8] Intest. Canal in Man, Lond., 1885, p. 40.
[9] Centralbl f. Chir. 1881, p. 172.
[10] New York Journal of Med., 1881.
[11] Treves, loc. cit., p. 35.

larly behind the cæcum, whereas it is exceedingly uncommon to find it dangling over the pelvic brim after the manner illustrated, even in our best standard anatomical works. In only seven of the examinations made by me did I find the appendix in part a pelvic organ.

The average length of the appendix is 4 inches, and its diameter is that of a goose-quill. Unless much below average length the appendix is never straight in its course. It always presents a spiral curve, the concavity of which looks to the right and upwards. In its width the appendix is subject to few variations except as a result of disease. Regarding its length the reverse obtains. In children it is relatively longer than in adults. Complete absence of the appendix was noted by Bartholin and Morgagni. Gerlach found it as large as a pea. On the other hand, Treves and Fitz found the appendix 6 inches long. In a specimen in my possession, that of a large adult, it is 7½ inches long. In the museum of the Pennsylvania Hospital is an appendix 9 inches long. As described by Wistar,[12] it lay behind the colon and reached the under surface of the liver. Other peculiarities of the appendix in respect to position and mobility are often encountered; being for the most part the result of abnormal processes, they can more appropriately be considered under the pathology of this region.

When the normal appendix is drawn from its niche behind the cæcum and ileum, it will always be found completely surrounded by peritoneum and having a distinct mesentery by which it is attached to the under layer of the mesentery of the ileum. This appendicular mesentery or mesenteriolum, as it is technically called, springs at right angles from the lower surface of the mesentery, extends without to the ileo-cæcal junction, while within it forms a free and concave margin. In the fœtus it extends quite to the tip of the appendix, while in the adult the distal half-inch or more is free of mesenteric attachment and therefore movable. Haschke,[13] Alby,[14] Little[15] and Treves[16] refer to a second duplicature of peritoneum which is always demonstrable by traction on the appendix and is quite distinct from the mesenteriolum proper. It is smaller and anterior to the larger fold. It arises from the last inch or two of that border of the ileum which is most remote from the mesenteric attachment, passes over the inferior attachment of the ileo-cæcal junction, is attached to the cæcum and joins the mesenteriolum near the line of its insertion to the appendix. Like the mesenteriolum, this duplicature has a free and concave margin looking to the left. Between this fold and the mesentery of the appendix there exists the depression, large enough to admit a finger, first accurately described and called by Luschka[17] the ileo-cæcal fossa.

Complicated as the peritoneal investment of the appendix may appear, a knowledge thereof has a practical bearing. Since it is nowhere attached to the abdominal wall or to fasciæ covering the latter, and since, like the cæcum, it is everywhere covered by peritoneum, and since the serous walls bounding the ileo-cæcal fossa are in close relation with the appendix, the fatality of perforations of this part is greatly diminished by the natural tendency of inflamed serous surfaces to adhere and to limit an abscess which may develop. For the same anatomical reasons every perforation of the appendix must involve the peritoneum.

The usual seat of the cæcum and appendix is in the psoas muscle, the apex of the former pointing towards the inner half of Poupart's ligament. It is only in exceptional cases or where the cæcum is greatly distended that it extends outward and is in contact with the iliac muscle. Even in such an event a double serous layer intervenes between them. In almost all subjects the ileum extends over the inner border of the psoas, and its termination is loosely fixed to the pelvic brim by a double peritoneal fold. Great length of this and of the muscular wall will in certain cases permit cæcum and appendix a greater scope of movement than they generally possess. Under such conditions they may be found in the pelvis, even to the left of the median line. This anomalous position of the cæcum is of sufficiently frequent occurrence (18 times in 100) to account for its occasional appearance in inguinal and femoral herniæ and the opening of perityphlitic abscesses into rectum, vagina or bladder.

While, as already indicated, every extension of a cæcal or appendicular inflammatory process must involve the peritoneum, and if an abscess form this must be primarily intraperitoneal, the contiguity of the cæcum to the psoas and eventually to the iliac fascia, has an important bearing on the subsequent course of abscesses of this region. It will readily explain the peculiar decubitus of many cases of perityphlitis; the fixed position of the limb, the pains radiating towards the thigh and the genitalia, and the possibility, as Gibney[18] has shown, of mistaking protracted cases for hip disease. In the cæcum and appendix radicles of the portal vein are found, accounting for the possibility of pyelo-phlebitis as a sequela of pericæcal inflammation. On the other hand, thrombosis of the iliac vein is of far less frequent occurrence than the anatomical relations of the cæcum would lead one to expect. Bamberger[19] was the first to call attention to this compli-

[12] Quoted by Fitz, Am. Jour. Med. Sci., vol. xcii, p. 32; and JOUR. AM. MED. ASSOCIATION, Jan. 21, 1888.
[13] Aubg. Splanchnologie.
[14] Bau des Mensch. Körpers.
[15] Dublin Quart. Jour., vol. lii, p. 193.
[16] Loc cit., p. 47.
[17] Virchow. Arch. f. Path. Anat., Bd. 21, p. 287.
[18] Am. Jour. Med. Sci., vol. lxxxi.
[19] Krankheiten des chylopoietisch. Systems, p. 332.

cation, of which I. Wickham Legg[20] has quite recently reported a very interesting case that ended in recovery.

The anatomical relations of cæcum and appendix alone suffice to explain certain clinical differences between inflammatory conditions of the one or other part. The cæcum being comparatively superficial in position, its peritoneal coat continuous with that of the iliac fossa and anterior abdominal wall, an abscess about it would speedily manifest itself by the presence of a tumor. The appendix, on the other hand, being deeply seated behind the cæcum, and below the mesentery of the ileum, abscesses about it may continue for a considerable length of time without the appearance of a tumor in the right iliac fossa. The fixed position of the ileo-cæcal junction and the mesensery would often direct the progress of such an abscess towards the pelvis. Hence the great importance of rectal exploration in cases of suspected inflammation of the appendix, as a diagnostic measure; a factor to which Fenwick[21] and Pepper[22] have recently directed especial attention.

The position of the appendix may also account for another clinical feature of not a few cases of appendicitis, and that is the marked symptoms of intestinal obstruction. The thickened appendix, possibly embedded in an abscess, compresses the ileum from below and behind until obstruction in reality occurs. In 1876 Duplay[23] was enabled to collect twelve cases in which perforative appendicitis produced all the manifestations of internal strangulation.

Physiology.—If the cæcum and appendix have a function, it can only be inferred from comparative studies. It is well known that in the herbivora the cæcum plays the rôle of second stomach, forming, not an insignificant dilatation of the colon, but a vast reservoir communicating with the small and large intestines by narrow orifices. Its volume then occupies the larger part of the abdominal cavity, and its capacity may be twice as great as that of the stomach. Under such circumstances the cæcum approaches the small intestine very closely in structure. In the hare, for example, it possesses valvulæ conniventes, Peyerian patches, etc. A constricted terminal portion of the cæcum in this animal presents, in appearance at least, an analogue of the vermiform process as seen in man and the higher apes. In the carnivora, on the other hand, the cæcum is rudimentary. Whether well-developed or vestigiary, the cæcum undergoes modifications, both as to size and form, according to the kind of nutriment.

In man, the chief function of the cæcum is absorption, as evidenced by its wealth of solitary follicles and the presence of a group of five or six lymphatic glands which are always found in the mesentery near the ileo-cæcal junction. By way of digression, it may be observed that secondary suppuration in these glands may occasionally explain the non-communication of perityphlitic abscess with the bowel. It is in the dependent pouch of the cæcum that gravity tends to retain the excrement for some length of time, until absorption changes its character from that found in the small intestine. It is in this most stagnant part of the alimentary canal, therefore, that fæcal impaction or the lodgement of foreign bodies would most frequently take place. In the appendix, Lieberkühn's glands and solitary follicles exist in such profusion that facilities for absorption are even greater than in the cæcum. Hence the contents of the appendix are always of firmer consistence than those of the cæcum.

I have so often found the appendix occupied by a narrow column of rather firm matter, that I have been impressed with the idea that, in reëntering the cæcum, it may possibly act as a nucleus for the farther deposit of excrement, thus being the incentive to the moulding process which is perfected, of course, in the haustra of the colon.

In 1847 Gerlach[24] called attention to a valve at the orifice of the appendix which had already been described a hundred years before by Weitbrecht and Schrader.[25] It is best developed between the ages of 3 and 12, but even in adults is said never to be absent. In fresh specimens I could not demonstrate the valve, although its presence was inferred from the difficulty with which injections into the colon and cæcum would enter the appendix. More important to me than the valve appears the arrangement of the mucous membrane of the cæcum in pretty constant folds. Unless the parts are thickened by disease, the mucosa of the postero-internal part of the cæcum is arranged in rather low concentric folds around the orifice of the appendix. With distension of the cæcum they disappear. The appendicular orifice appears in the centre of these folds as in a vortex, towards which there would be a natural though sluggish current of whatever came in contact with the inner wall of the cæcum. It is only in this way that we can account for the presence in the appendix of elongated bodies like a pin, a bristle from a tooth-brush or a nail, when its orifice is hardly large enough to admit the pit of a cherry.

A probable function of the appendix is the secretion of mucus, of which a very considerable quantity is usually incorporated with the excrement. When the appendix of the rabbit is opened there exudes a thick gummy secretion differing entirely from that of the cæcum. When the appendix of man is patulous it contains also a thick glairy mucus, like that which can at all times

[20] St. Bartholomew's Hosp. Rep., vol. xvi, p. 259.
[21] Brit. Med. Jour., 1884, vol. ii, p. 982 et seq.
[22] Jour. Amer. Med. Association, January 21, 1888.
[23] Arch. gén. de Méd., 1876, vol. xxviii, p. 513.
[24] Zeitsch. f. Ration. Med., Bd. vi, p. 12.
[25] Hyrtl, loc. cit., i, p. 806.

be squeezed from the crypts of the tonsils. Like the tonsil, the appendix is a lubricator. Its function is not of a high order, as is evidenced by the fact that its absence or conversion into a fibrous cord can never be recognized *intra vitam*. It may therefore be concluded that, when well developed, the appendix has a function subordinate to that of the cæcum. The history of its development and its occasional absence stamp it, however, as a vestigiary part of the alimentary canal.

Pathology.—When Dupuytren,[26] in 1826, had first called attention to the relation of pericæcal abscesses to those of the right iliac fossa, observations in this field were rapidly instituted by continental writers. In 1830 Goldbeck[27], of Heidelberg, first suggested the term perityphlitis for all the inflammatory conditions of this region. In 1834 a step was taken in the right direction when Copeland[28] first differentiated lesions of the cæcum from those of the appendix, and another by Albers,[29] who first described that special form since known as "typhlitis stercoralis." In 1836 and 1838 John Burne[30] contributed, in two excellent articles, further knowledge concerning lesions of the cæcum and appendix. Within recent years, particularly, numerous articles on the diseases of this region have appeared and as a result their proper nomenclature is being gradually determined.

There are most excellent reasons, anatomical and clinical, for separating inflammations here present into those of the cæcum and those of the appendix; each to be subdivided into those of the part itself and those of the peritoneal investment. There is, it appears, a rational basis for the use of the terms, typhlitis to indicate inflammation of the cæcum, perityphlitis to indicate a like condition of its serous coat. Appendicitis, following in the path of With[31] and Fitz[32] should be reserved for inflammation of the appendix, and peri-appendicitis, or appendicular peritonitis for that of its peritoneum.

Of the varieties of cæcal and appendicular inflammation, those of the appendix are of far more frequent occurrence in grave cases than those of the cæcum proper. Yet it is equally certain that typhlitis is far from uncommon, although mortuary records would fail to show it. In the investigations of the anatomy of this part I was struck by the frequency with which evidences of chronic catarrh, in the form of patches of indolent venous congestion, pigment spots and superficial abrasions were encountered in the cæcum. In all such instances the scybalous contents were covered with a layer of opaque mucus. This catarrhal condition is by no means confined to those who are habitually constipated, but is often encountered in the young, in whom the dependent position of the cæcum makes it a favorite seat for the retention of indigestible food. From this condition there is only a step, though a long one, to the typhlitis stercoralis of German writers, which, though doubtless of frequent occurrence generally ends in recovery and is therefore not often anatomically demonstrable.

Given, however, a continuance of the cause, which, in contradistinction to that of peri-appendicitis, is rarely a foreign body and the erosion becomes an ulcer. If the pressure effect of a hard, fecal mass be the cause, the ulcer would probably be seated in the posterior wall of the cæcum, where, therefore, the localized peritonitis or intraperitoneal abscess would be most likely to result. That such peritonitis may develop in any portion of the cæcal superficies is shown by the multiplicity of directions taken by perityphlitic abscesses in different cases. Whether the abscess presents itself above or below Poupart's ligament the superficial position of the cæcum generally causes it to appear early. The only exception hereto is that in which the pus travels towards the loins, under which circumstances the pericæcal trouble is probably secondary to a perirenal, spinal or iliac abscess.

The perforations which occur in the cæcum are not often produced by foreign bodies although a number of such cases have been recorded. They are not infrequently produced by tuberculosis, although here, as in the case of foreign bodies, the appendix is preferably the part affected. The ulceration may however exist in the cæcum alone, the appendix remaining unaffected. I beg to present a specimen of this kind.

It is evident that the views entertained from time to time concerning the relative importance, pathologically, of the cæcum and the appendix have vibrated like a pendulum. Dupuytren and his followers looked on the cæcum as the part primarily at fault. Burne located in the same part, and Habershon[33] followed in the same direction. In the more recent contributions of Kraussold[34] and Biermer the appendix has been given greater prominence than ever before. Whereas, formerly, as Kraussold puts it, the appendix was treated in a stepmotherly way, there is danger now that the cæcum will share this fate. While in the acuter and more fatal forms of perforative inflammation of this region the appendix doubtless plays the more important rôle, of 25 cases recently collected by me only one[35] being of the cæcum, it is unreasonable to ascribe every perforation to it from clinical evidence alone. Thus so admirable an observer as Fenwick[36] mentions a case in which an abscess of the thigh was opened and discharged

[26] Tumeurs Orale, v. iii, p. 12.
[27] Ueber eigenthümliche Eut-Geschwülste d. recht Huftgegend, 1839.
[28] Dictionary, vol. i, p. 277, quoted by Fitz.
[29] Beobacht, im Gebiete d. Pathologie.
[30] Medico-Chirurg. Trans., vol. xx, p. 201 and vol. xxii, p. 33.
[31] London Med. Rec., 1880. 1, p. 213, quoted.
[32] Amer. Jour. Med. Sc., vol. 92, p. 321.
[33] Guy's Hospital Reports, vol. xi.
[34] Volkmann's Samml. Klin. Vorträge, 191.
[35] Case of J. J. Reed, Med. Record, 1886, i, p. 401.
[36] Loc. cit.

fæces. In another instance an abscess terminated in a chronic vaginal fistula. Since both cases recovered what evidence is there that in either the appendix was primarily at fault. Fenwick, with others, rightly claims that the occlusion of the orifice of the appendix is a common cause of perforation. How can we logically, in such a case, account for the continuance of a copiously discharging fæcal fistula. It appears to me much more probable that cases of this nature are primarily of cæcal origin.

On the other hand the position of the appendix, the narrowness and tortuousness of its canal, the presence of a valve, the tendency of fæcal or foreign matter to be retained in it and the readiness with which it is displaced, all serve to make the appendix the principal seat of grave pericæcal inflammation. It is not remarkable therefore that autopsies will often reveal pathological conditions of the appendix where death has resulted from other causes. Züngel, Toft and Kraussold have called particular attention to this fact. The latter writer even claims that between the age of 20 and 70 every third body will show traces of disease of the appendix, and that particularly in tubercular subjects it is often converted into a tubercular ulcer. In over sixty examinations recently made I found reasons for believing that in this section of the country, at least, the proportions quoted are entirely too large. In only eight were there either abnormal adhesions, unusually hard fæcal masses, fibrous occlusion, or cicatrices on the surface. In only one instance was a foreign body (the stem of a raisin) encountered. The discrepancy between these observations and those of the authors alluded to may be accounted for by the greater indulgence in animal diet by our people. Speck[37] calls attention to the greater frequency of the diseases of this region, in Siberia, where the food, which is mostly vegetable, contains a large amount of indigestible residue.

The history of appendicitis is for the most part like that of inflammations in other narrow mucous canals with their catarrhal, ulcerative and cicatricial phases. Recurring like typhilitis and usually occurring like it about the period of adolescence, appendicitis is doubtless in many cases but the extension of disease from the cæcum. The catarrhal thickening of Gerlach's[38] valve or permanent stenosis of the appendicular orifice may cause the retention of excrement or mucus, either of which may form the nucleus of a concrement. This or a foreign body has been shown by Matterstock[39], Fenwick and Fitz to be the cause of perforation in three-fifths of all cases. In other instances the appendix degenerates into a retention-cyst. Whatever the condition of the appendix if at all grave, the peritoneum is sooner or later implicated. The favorable position of the appendix for forming adhesions and localizing abscesses without doubt often prevents a general peritonitis. On the other hand the rupture of such adhesions or residuary abscesses may fatally infect the general peritoneum. Not infrequently, where there is no foreign body, the appendix degenerates into a firm fibrous cord, buried in adhesions and often difficult to find. These are the cases in which the progress of the appendicitis is made manifest from time to time by clinical phenomena, and in which the appendix, as the seat of recurring disease and a constant threat to the individual, may, as was recently done, be justifiably excised.

In a very fair proportion of cases (seven out of twenty-five), no foreign body or fecal mass is found, nor can the rupture of a cyst or tubercular ulceration account for the perforation peritonitis. In such instances the distal inch or two of the appendix is often found gangrenous, either adherent to the appendicular base or as a slough-free in a pelvic abscess. This condition, it appears to me, is brought about by the displacement of the appendix and consequent torsion of its vessels. Since the distal half inch or inch has no blood supply independent of the base, torsion of the latter would primarily involve the tip. A number of facts support this view. In the first instance, the appendix is not a pelvic organ under ordinary conditions. In perforative appendicitis of rapid development the abscess is at least often intrapelvic. In the second place the exciting cause of perforating appendicitis is in one-fifth of the cases a violence, such as might result from blows on the abdomen, excessive exercise, lifting or vomiting. In the third place the gangrene is usually developed beyond the point of perforation. The latter is usually within one or two inches of the cæcal end, the gangrene, hovever, involves the tip.

The subsequent pathological history of perforative appendicitis is outlined by the rapidity of the effusion and the facility or want of facility with which adhesions are formed. In many instances the contents of the appendix are thrown into the general peritoneal cavity, and death ensues with the rapidity and certainty pertaining to intestinal ruptures from other causes, and before adhesions form. In many cases, however, gradual drainage prepares the way for a limitation of the resulting abscess between mesentery and mesenteriolum, small intestine within and cæcum without, omentum in front and behind all, the reflections of the peritoneum over the psoas and eventually over the iliac fascia. Is it not possible, therefore, that except in foudroyante cases, the danger of general peritonitis is somewhat over-estimated?

When an abscess forms, what more probable than its more or less rapid course towards the surface, above or below Poupart's ligament, towards

[37] Quoted by Whittaker. Pepper's Syst. of Med., vol. ii, p. 816.
[38] Gerh. Handb. der Kinderkr.
[39] Treves, Brit. Med. J.

the hypogastrium? Or that in other instances burrowing through the iliac fascia it should tend towards the loin; or opening into some hollow viscus like the cæcum, rectum or vagina eventually be recovered from?

It is beyond the scope of the task assigned me to dwell on the diagnosis and treatment of the conditions considered. When and how to deal with them will be discussed by those of my colleagues more competent and experienced. Were I, in conclusion, permitted a few aphorisms they would be: "Place not your faith in exploratory punctures; operate early and by lateral laparotomy when the symptoms are of the gravest and a tumor is not forthcoming; reserving the incision parallel to Poupart's ligament for abscesses that are palpable."

INTESTINAL OBSTRUCTION IN ITS SURGICAL ASPECTS.

Read in the Section on Anatomy and Surgery at the Thirty-ninth Annual Meeting of the American Medical Association, at Cincinnati, May, 1888.

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Surgical operations are necessary in intestinal obstruction for two purposes—for diagnosis and for treatment. The great mortality of intestinal obstruction shows the inefficiency of the methods of treatment now generally used. For intestinal obstruction is not a disease which is necessarily fatal. It is a mere occlusion of the alimentary tract which, theoretically at least, is always capable of some form of relief. A person may occasionally die of the disease that produces the obstruction, but the obstruction itself is always amenable to treatment.

The mortality of all kinds of acute obstruction is nearly 100 per cent. when treated by medicinal means alone. And according to Rockwell's table, published in the *Annals of Surgery*, for February, 1888, the mortality in all cases of intestinal obstruction which were submitted to operation between the years 1877 and 1887 was 46 per cent. This almost certainty of death when medicinal treatment alone is used is due to the fact that attempts are made to overcome by drugs a mechanical difficulty of such a nature that it can only be overcome by mechanical means. And the great mortality after surgical treatment is due to the fact that operation is deferred too long; delay in operating being caused, in many cases, by an uncertainty of diagnosis; in others, because the symptoms have been masked by opium, in others on account of a misplaced confidence in the value of a preliminary treatment by drugs, and the "trust to luck" procedures like massage, rectal injections, puncture by a trocar, etc. This delay, this preparatory treatment of the patient, is the reason that laparotomy for intestinal obstruction is so very much more fatal than laparotomy for any other cause. The average length of life in cases of acute obstruction is five or six days, and during this time the diagnosis must be made and a definite plan of treatment instituted. As, therefore, an early diagnosis is of such great importance, I would urge the free use of an exploratory laparotomy as a means of diagnosis in all doubtful cases; and in those most delusive cases of chronic intestinal obstruction with a past history of acute attacks. For it is in such cases that there is the greatest tendency to pursue the same expectant plan of treatment which may previously have been successful. An exploratory laparotomy performed in such cases at the very beginning of an acute attack is accompanied by but little danger and, by revealing the exact nature of the disease, it gives warning of how long it will be safe to allow the case to run on without operative relief.

In the *Lancet* for October 29, 1887, Mr. Treves reports two successful cases where exploratory laparotomy was performed for chronic obstruction. In one case an artificial anus was immediately made from the cæcum, and in the other the abdominal wound was closed and eight days later a lumbar colotomy was performed.

In discussing the surgical treatment of intestinal obstruction, I shall consider the general procedures which may be necessary for relief and treatment, without considering separately the individual forms of the disease or the details of the special surgical operations.

When laparotomy is performed for acute obstruction there is no time for much preliminary preparation of the patient. It may be necessary as a preparatory step to relieve abdominal distension; for great distension has caused sudden death by pressure upon the diaphragm and interference with the action of the thoracic organs; and the patient has, in several instances, died while anæsthetized from suffocation by vomited matter entering the trachea (*Med. Record*, February 11, 1888).

These dangers may, to a great extent, be avoided by preliminary free washing out of the stomach with large quantities of hot water, either by making the patient drink the water, or by using the stomach pump. Puncturing the intestines with a trocar through the abdominal walls, as a preparatory procedure before the operation, must be but rarely necessary, and is not entirely free from danger.

Enterotomy and Colotomy.—The operations of enterotomy and colotomy were at one time very frequently employed for the relief of intestinal obstruction. They are, however, at the present day, rarely justifiable as primary operations, unless the exact nature of the obstruction and the impossibility of removing it have been ascertained beforehand, or unless the condition of the patient is such that even an exploratory laparotomy would

be fatal. Enterotomy and colotomy are safe operations; they are very easily executed, and they generally empty the intestines. They, however, do not cure the obstruction. Moreover, the operation is performed in the dark; the opening may be made below the obstruction; the jejunum and not the ileum may be caught, and the patient die of consequent inanition; a gangrenous loop of intestine may remain in the abdomen, or a cancerous mass which might have been removed may subsequently cause death. It may be found necessary, after laparotomy, to perform enterotomy or colotomy as secondary operations, but as primary operations they are rarely warranted.

Incision in Laparotomy.—In performing laparotomy for intestinal obstruction a median abdominal incision is the best. Laparotomy for obstruction is always more or less of an exploratory operation. The frequent anomalous anatomical arrangement of the intestines, the difficulty of diagnosing the position and nature of the obstruction, and the fact that more than one obstruction may exist, all render it most desirable that the primary incision should be the one which is best adapted for a general exploration of the whole abdominal cavity. Moreover, with very few exceptions, all the procedures necessary for the relief of the various kinds of obstruction are most easily performed through the median incision. Even in case a tumor is felt in the abdomen I think that a median incision is better than an incision immediately over the mass which is supposed to represent the obstruction. For there have been cases reported in which the tumor did not represent the site of the obstruction; and others in which it was found necessary to execute more extensive intra-abdominal manipulations than could be performed through the incision over the tumor. In a case of acute obstruction from peritoneal adhesions and subsequent kinking of the bowel upon which I operated several months ago, there was a decided swelling in the right iliac region, and this swelling represented the obstructed loop of intestine; there was, however, at the same time, a diseased condition of the sigmoid which would not have been discovered, and could not have been treated, through any but a median incision.

Length of the Incision.—The length of the incision depends upon the condition of the abdomen as regards distension and upon the position of the obstruction. In all cases it is best, in this as in other abdominal operations, to begin with a small incision and to enlarge it if necessary. A 3-inch incision immediately below the umbilicus is the most convenient. In any case a heroic incision from ensiform to pubis will enable the surgeon to find the obstruction very quickly, but it is also very liable to kill the patient. I think, however, that in some cases there is less damage done by a large incision than by the effort to work with the hand or fingers crowded through too small an opening.

Relief of Distension.—If the distended intestines interfere with the search for the obstruction their contents should be immediately evacuated by a transverse incision on the convex surface of the bowel, from ⅓- to ½-inch in length. The gut should be held over a basin and the abdominal walls compressed. I think that incising the intestine is better than puncturing it by a trocar; for a trocar of sufficient size makes a rude opening which is as difficult to close as an incision and does more injury to the wall of the gut; and fine punctures with needles allow only the escape of gas and frequently leak. After the distension has been relieved by incision, the opening should be closed by silk or catgut sutures. This method of emptying the intestines is opposed by some surgeons; I have, however, relieved abdominal distension in this way and have frequently seen it done by others, and never with any bad results.

The distension may also be relieved by a method of Rehn, of Frankfort (*Centralbl. f. Chirurg.*, No. 30, 1887), which consists in washing out the stomach with large quantities of hot water during the operation, in the same way that I have already mentioned as a preliminary proceeding.

Position of the Obstruction.—If the position of the obstruction is represented by a tumor or if it has been diagnosed in any other way, the operator has a guide with which to begin his search after opening the abdomen. This guide, however, is often uncertain; in many cases the tumor has been found not to represent the obstruction, and in other cases the position of the obstruction, though accurately diagnosed before operation, has been changed on account of the intestinal distension. In one case of intestinal obstruction upon which I operated the obstruction was caused by cancer of an enlarged sigmoid. The position of the obstruction had been accurately diagnosed two weeks before operation by the presence of a mass felt in the left iliac region, and through the rectum, and yet this mass was found, at the operation, after some difficulty, deep in the abdomen, on a level with and to the right of the umbilicus.

If, when the abdomen has been opened, a loop of intestine is found decidedly distended beyond its neighbors, and more congested and of a darker color, it will generally lead directly to the obstruction. This is one of the most useful guides to the operator. It has indicated the position of the obstruction in the three cases to which my experience is limited, and has served the same purpose in the great majority of reported cases which I have read. Grieg Smith says that this guide has failed to indicate the position of the obstruction only once in the eight cases upon which he has operated. The distended loop should be followed from the stomach toward the rectum, a procedure which is easy in the large intestine, but in the small intestine, as the anatomical guides indicating the direction of the gut are of no practical

service, it is best to begin by following the loop toward the pelvis; or, if there is much congestion, the gut should be followed in a direction from the less to the more congested portion. On the other hand, if collapsed bunches of intestine are found, they will also lead to the obstruction if followed in an upward direction; that is, from the rectum toward the stomach. Collapsed portions of the intestine, however, are not easily discovered. They do not present at the abdominal incision like the distended loops, but they lie deep in the abdomen or pelvis.

If these guides fail to reveal the position of the obstruction, a systematic search should be begun. The usual hernial orifices should first be examined with the finger, and the operator should then examine the region of the cæcum. Most acute obstructions of the small intestine, whether due to false ligaments or to diverticula or to intussusception occur in the lower part of the ileum. The right iliac fossa is the commonest position of localized peritonitis in men, and Mickel's diverticulum is generally found about two feet above the ileocæcal valve. For these various reasons the right iliac region is the best place at which to begin the search for the obstruction, If the cæcum is much distended it is probable that the obstruction is in the large intestine; if the cæcum is not distended the obstruction should be sought along the small intestine.

In examining the small intestine it is best to go over the bowel continuously, loop after loop. Unless there is very much distension, which can not be relieved, it is not necessary to draw the intestine through the abdominal incision. If the sides of the wound are retracted the manipulation can be carried out altogether within the abdomen, for it is not essential to make a close scrutiny of the gut as when hunting for gunshot or stab-wounds. It is very rarely necessary to roll out all the small intestines upon the abdominal walls, or to practice eventration, which is always a dangerous proceeding. In all cases in which the eventration was employed in Senn's experiments upon dogs, a considerable degree of shock was observed and a number of the animals died within a few hours after operation (*Annals of Surgery*, January, 1888). When the intestines are removed from the abdominal cavity it is always difficult to keep them from becoming chilled, and there is great danger of putting too much drag upon the mesentery. I have seen eventration practiced upon one occasion and it is advocated by several surgeons. It is certainly a proper procedure if the obstruction can be found in no other way, but it is safest to try gentler methods in the beginning.

When the obstruction has been found it may be necessary only to relieve the strangulation and to close the abdomen. Or the nature of the obstruction may be such that an artificial anus is required; or again the condition of the gut and the character of the obstruction may necessitate resection. Heroic operations, like resection of the intestine—which are now so often essential for the relief of obstruction, would be less frequent if surgical treatment was instituted earlier. Resection in certain kinds of cases will always be required, but resection for gangrene alone will be required less frequently when the proper treatment of obstruction becomes more generally recognized.

After freeing an intestine obstructed by a band or a diverticulum, or through an aperture, the band or diverticulum should be removed as thoroughly as possible and the aperture closed in order to avoid future danger. Foreign bodies or intra-intestinal tumors may have to be removed by incision of the bowel. Gall-stones and intestinal concretions may be crushed by padded forceps or broken by a needle inserted through the wall of the gut, or, if in the small intestine, they may be pushed onward into the colon.

The formation of an intestinal anastomosis for the relief of obstruction is a rather old surgical proceeding which has recently been brought to notice by Professor Senn. It consists in shunting off—to use an electrical expression—the obstructed portion of the intestine by joining, by lateral approximation, a portion of the bowel above the obstruction to a portion below the obstruction. I believe that this operation has been performed but twice upon man and with unsuccessful results. It promises, however, with the improved technique introduced by Senn to be a most valuable addition to intestinal surgery, and in many cases will avoid the necessity of an artificial anus.

If an obstruction can not be relieved, and can not be removed by resection, we are obliged to make an artificial anus or an intestinal anastomosis, as the only means of saving the patient's life. The artificial anus can either be made immediately at the abdominal opening; or if the condition of the gut and the strength of the patient will admit of delay the abdominal incision can be closed and a subsequent colotomy can be performed. In case there is gangrene of the intestine, the gangrenous portion should be removed, whether or not the divided ends can be brought together. The lower end can be closed and an artificial anus can be made from the upper end. Or if the obstruction is so high up in the intestine that obliteration of the lower portion may cause inanition from deficient digestion, both ends should be brought to the abdominal incision; the upper end for an anus, the lower end to receive prepared food for further intestinal digestion.

Resection of the Intestine.—Resection of the intestine is necessary in case the obstructed bowel has become gangrenous; in cases where the obstruction involves the intestinal walls as in carcinoma; or in cases of volvulus or of intussusception

which cannot be reduced. It is strongly advised by some surgeons (W. T. Bull, *Medical Record*, Feb. 25, 1888) in case of obstruction from malignant disease to relieve the obstruction by the formation of an artificial anus and to remove the malignant mass by a subsequent operation. I think the propriety of this advice depends altogether upon the condition of the patient at the time of the operation. It is certainly desirable to remove malignant disease as soon as possible and to devote the subsequent operation only to closing the artificial anus. In the only case of obstruction from carcinoma upon which I have operated, I removed twelve inches of the large intestine at the first operation with a successful result.

If none of the various resection clamps are at hand the gut may be very conveniently closed, above and below the portion to be resected, by slightly slitting the mesentery perpendicular to the edge of the bowel, in a position where no vessels are seen; passing then a piece of rubber drainage tube or rubber band around the gut and clamping the ends of the rubber with forceps.

Treves strongly advises the removal of a triangular piece of mesentery along with the resected gut. This practice, however, is not essential to success, as cases have been reported where successful resections have been performed without the removal of a portion of mesentery (Sewart, *Am. Jour. Med. Sciences*, Jan., 1886.)

In case, however, the two ends of the divided gut are immediately united the triangular piece of mesentery furnishes a useful peritoneal graft to place around the line of sutures, as an additional protection against leakage of the intestinal contents (Senn, loc. cit.). If a portion of mesentery is removed the cut edges should be united, whether or not the operator intends to make an artificial anus. For this closes a dangerous aperture, which might, if unclosed, be the cause of subsequent obstruction. And in case the ends of the bowel are immediately united, it tends to prevent kinking at the suture line.

The profuse bleeding which often takes place during resection from the intestinal and mesenteric vessels may be avoided by clamping or ligating the mesentery in portions before the bowel is removed. And if it is desirable to remove a portion of mesentery the triangular piece can be folded upon itself and the continued suture to close the gap can be introduced before the mesentery is cut.

Artificial Anus after Resection.—When the intestine has been resected the question presents itself whether the cut ends should be immediately united and the continuity of the intestinal tract restored or whether a temporary artificial anus should be made and the gut reunited by a subsequent operation.

This is one of the most important points in the surgery of intestinal obstruction.

The latter procedure—the formation of a temporary artificial anus—is undoubtedly much the safer method in all cases of acute obstruction and in acute attacks in chronic cases. In acute obstruction the fact that resection is necessary implies that the case has been one of some duration. The patient is in a dying condition, and relief to be of any use must be immediate. Suturing the divided ends of the gut prolongs the operation; a difficult operation is performed under circumstances most disadvantageous for its success, not only because it is much more difficult properly to introduce the peritoneal sutures on account of the attenuated condition of the intestinal walls, but also, because the line of union is from the beginning exposed to the great tension and pressure exerted by the intestinal contents. Moreover in these cases the whole absorbing portion of the intestinal tract is often full of feces, and the patient is suffering from toxæmia from absorption of excrementitious products, and it is therefore desirable that these products should be eliminated as quickly as possible. If the gut is united after resection the feces before escaping must travel a longer road; and must overcome the partial obstruction which always exists at the line of suture from the inversion of the edges, and the greater or less interference with proper peristaltic motion. And finally if we refer to statistics we find by the statistics of Reichel that there is a very much greater mortality when the gut is immediately united, than when a temporary artificial anus is made.

For these reasons the temporary formation of an artificial anus is the safer procedure.[1] A case to which I have already referred was a beautiful illustration of the instantaneous relief afforded by an artificial anus. The patient, a woman 53 years of age, had suffered with complete obstruction for twenty-eight days. Feculent vomiting had existed for two days before operation. She had not closed her eyes in sleep for a week before operation. The abdomen was tremendously distended. After resecting the obstructed portion of intestine, which proved to be an enlarged carcinomatous sigmoid, I made an artificial anus. Large quantities of fæces and gas gushed continually from this opening. A few hours after operation the abdominal walls had become relaxed, flabby, and depressed below the costal margins. And the patient slept almost continually for the first thirty-six hours after the operation.

I admit that an artificial anus is a misfortune to be avoided if possible, and the ideal method, in cases of obstruction where resection is neces-

[1] And this rule is good, I think, even when the obstruction is high up in the jejunum. It is often stated that, in such cases, the divided gut should always be immediately reunited, to avoid the danger of inanition from deficient digestion. But if both ends of the bowel are brought to the abdominal opening the patient can be fed not only by the mouth, but also by specially prepared food introduced into the lower intestinal opening. A person has been nourished for a considerable length of time in this way through the intestinal opening existed in the duodenum.—(*Lancet*, 1888.)

sary, is immediately to restore the continuity of the intestinal tract. This, however, can only be done with safety in those cases which are operated upon in the very beginning of the disease, where there is no tympany, no fæcal accumulation and no exhaustion. But it is in just such cases that resection is very rarely necessary.

I do not think that improved technique in the methods of resection will enable us to do away with an artificial anus, so much as improvement in diagnosis, and a more general recognition of the value of early operation. When a temporary artificial anus is made after resection, it is a useful procedure to join the divided ends of intestine for at least one-half their circumference before uniting them to the abdominal incision. And when the ends of gut are fastened to the wound the mesenteric attachment should be placed in the lower angle of the wound, so that the lateral surfaces of the bowel fall in contact, and the subsequent closure of the anus by an enterotome will be simplified. In order to facilitate the closure of the artificial anus, I think that two perforated discs of metal might be introduced—one into each piece of bowel, from one to two inches from the free ends, and united to each other by sutures on the peritoneal aspect; in a way exactly similar to that employed by Senn for producing lateral approximation in making an intestinal anastomosis. When proper, the gut could be incised through the perforations of the discs, and the fecal discharge diverted through this channel.

Before attaching the bowel, the abdominal incision may be prepared by drawing out the parietal peritoneum and suturing it to the skin margin or to the transversalis fascia. The intestine can then be stitched to the abdominal wall by sutures involving all but the mucous coat. Though this method is neat and desirable as it places large peritoneal surfaces in contact, yet it uses valuable time and is not at all essential to success. The intestine can be fastened directly to the skin margin by sutures which transfix all the coats of the gut and the whole thickness of the abdominal parietes, or only the transversalis fascia and skin, or in case of thick abdominal walls, the skin alone. The main point in any case where the intestine is open from the beginning is to obtain firm, tight suturing and accurate apposition. The peritoneal surface of the intestine and the raw surface of the abdominal wound are capable of forming a firm union probably as soon as if two peritoneal surfaces were brought in contact.

It is desirable to leave the closure of the remainder of the abdominal wound until the bowel has been attached to the incision, as it may be necessary to make a final irrigation.

Closure of Abdominal Incision, Complicated by Distentions.—When an artificial anus has been made the distention subsides so rapidly that there is generally no difficulty in closing the abdominal wound. In other cases of obstruction, however, where resection has not been necessary the protrusion of distended intestines often causes great embarassment when the operator attempts to close the incision.

There are several methods of meeting this difficulty; by compressing with large flat sponges, or by tucking a wet towel around the intestines under the abdominal parietes, and closing the wound over this, the towel being gradually withdrawn as the abdominal sutures are fastened. I think, however, that it is very unsafe to close an abdomen when the intestines are enormously distended. The dangers to be feared from were abdominal distensions unconnected with peritonitis are very great. This distension, incident to paralysis of the intestinal muscles is the cause of death, in those cases to which Tait has called attention, when, after ovariotomy a patient will die with an enormously distended abdomen and all the symptoms of peritonitis, and yet post-mortem examination will reveal no inflammation of the peritoneum.

The great pressure within a tympanitic abdomen can be realized and all of us who have made autopsies upon persons who have died of peritonitis, where it often requires the exercise of considerable strength to insert the hand between the intestines and the parietes. Such pressure exerted against the diaphram, impedes the action of the heart and lungs, already weakened by the anasthesia, and may cause sudden death from heart failure.

And, again, intestines which are overdistended by gas are themselves subjected to a form of obstruction caused not only by the muscular paralysis incident to overdistention, but also by the sharp flexures or kinks in the bowel produced by traction upon the mesentery. And finally, in many cases of intestinal obstruction the coats of the bowel have become so attenuated and degenerated from prolonged tension, that there is continual danger of a rupture unless this tension is quickly relieved. For these reasons I think it is safer to empty the intestines by incision before closure, so that the patient shall not leave the operating table with a distended abdomen.

Subsequent Obstruction.—A continuation of obstruction is always to be feared even after the relief by operation of the original cause. Thus a loop of intestine strangulated by a band or a diverticulum may be completely relieved by the surgeon, and yet, all the signs of obstruction may continue, and the patient die unbenefited by the operation. This continuation of obstruction may depend upon distention, upon general peritonitis, or upon local paralysis in the damaged portion of intestine; this last cause frequently producing death in strangulated hernia where fecal vomiting and constipation continue even after reduction of the bowel.

In some cases the strength of the patient is sufficient to tide him over the period during which the intestines are recovering themselves. In other cases where the patient is *in extremis*, the alleviation furnished by relieving the original obstruction is not sufficient, and more radical treatment must be instituted. In these latter cases I think that in addition to relieving the strangulation a temporary artificial anus should be made as the only means of furnishing this essential quick relief. Two months ago I assisted Dr. Joseph Price at a laparotomy for intestinal obstruction caused by pelvic peritoneal adhesions. The obstructed bowel was freed, and the perviousness of the intestinal tract restored. Before closing the abdomen a loop of ilium was incised and a considerable quantity of flatus and fluid feces escaped—with a marked beneficial effect immediately perceptible in the character of the pulse and respirations. The intestinal incision and the abdominal wound were closed and the patient returned to bed. All the signs of obstruction, however, continued, there being absolutely no escape of flatus or feces, and the patient died in twenty-six hours. Post-mortem examination showed that the operation had been thoroughly performed, and that the obstructed portion of intestine had been entirely relieved. If in this case the incision in the ilium had not been closed but had been attached to the abdominal wound as a temporary artificial anus, so that the relief, so noticeable when the gut was first incised, had continued, I think that the chances of recovery would have been much better.

It may in some cases be a difficult matter to decide upon the necessity of an artificial anus for the purpose we are considering. In doubtful cases, however, it is best to err on the safe side and to make one. And if in any case of intestinal obstruction, after the abdomen has been closed, the obstruction is found to continue, it is not even then too late to re-open the incision and to perform enterotomy.

Artificial Anus for Peritonitis.—The value of this procedure is so great that I would urge its use not only for the peritonitis and paralysis following strangulation of the intestine, but also in peritonitis or intestinal paralysis of any other origin where there is great abdominal distention and fecal accumulation.

I have seen death result in two cases of typhlitis causing general peritonitis—with absolute constipation, fæcal vomiting and all the symptoms of acute obstruction. In one case the abdomen was opened and the peritoneum was irrigated and drained. The obstruction, however, continued and the patient died. In the great majority of cases of purulent peritonitis the recognized surgical treatment of irrigation and drainage is sufficient. In all cases the irrigation and drainage benefits the inflamed peritoneum. It, however, takes some time for the intestines to recover themselves so that the paralysis and consequent obstruction are overcome, and during this time, the feculent vomiting, the absorption of feces, the constant hiccough, the impediments to respiration and heart action may kill the patient before the results of the irrigation have time to show themselves.

It is in such cases that the additional relief afforded by enterotomy may save life.

If an abdominal drainage tube is also used the artificial anus can be made by Nélaton's incision for enterotomy, in either iliac region.

Continual Irrigation of the Peritoneum.— In cases of intestinal obstruction where there has been much peritoneal irritation, or where the condition of the strangulated bowel is doubtful and yet resection is not performed, continual irrigation of the peritoneal cavity with warm water for several hours after the operation is of great value. Such irrigation is of value: by continually washing from the peritoneum all septic products; by keeping the drainage tubes free, and the peritoneum open to drainage for the longest possible time; by keeping the irritated intestines continually floating in, or surrounded by a clean unirritating fluid, thus preventing the adhesion and matting together of knuckles of bowel which is such a frequent cause of subsequent obstruction.

Continual irrigation can be practiced by using two or more drainage tubes, or one reflux tube. Upon one occasion I used two glass tubes placed in the pelvis, and one large rubber tube running from the epigastrium to the lower angle of the abdominal incision. The case was one of intestinal obstruction caused by peritoneal adhesions and kinking of the ilium. There were several ounces of pus in two pockets in the pelvis; the sigmoid was gangrenous at one spot and there existed a fistulous opening into it; and about 12 inches of ilium was in such a condition that I should have resected it, had I not been afraid of the patient dying upon the table. The abdomen was flushed with warm distilled water every two hours, for twenty-four hours after the operation. The water being injected into one tube and allowed to flow from the others until it became clear. I think that it was this irrigation which saved the patient's life; all septic products being washed away from the diseased gut until healthy reaction became established.

In conclusion I will summarize the points to which I beg to call the especial attention of this Section:

The use of an exploratory laparotomy in cases in which the diagnosis of intestinal obstruction is doubtful.

The necessity of very early operation in the treatment of this condition.

The necessity of a temporary artificial anus, after resection for obstruction.

The value of a temporary artificial anus, as a

means of avoiding subsequent obstruction, when there has been great abdominal distension and fecal accumulation.

And finally, in some cases, the value of continual irrigation of the peritoneal cavity.

THE IMPUTATIONS ON BETA-NAPHTHOL

Read in the Section on Medicine, at the Thirty-ninth Annual Meeting of the American Medical Association, May, 1888.

BY JOHN V. SHOEMAKER, M.D.,
OF PHILADELPHIA.

Naphthol, as I remarked in a paper read before the Philadelphia County Medical Society, on October 17, 1883, published in THE JOURNAL on November 3, 1883, stands in the same relation to naphthaline as phenol does to benzol and cresol to tuluol. If one of the six molecules of hydrogen in benzol is replaced by hydroxyl, phenol is obtained, and in a similar manner are cresol and naphthol formed. The inference may therefore be safely drawn, through this analogy of formation and similarity of constitution, that their products are similar, and in consequence their general effects, so far as toxic quality is concerned, similar in action on the animal organization. This inference I accordingly drew, and proceeded to experiment with β-naphthol as probably affording a product equally antiseptic and harmless with that offered by the other form.

To do this effectively it was of course necessary to discard the commercial varieties, which contained sulphur and sulphurous acid and yield when sublimated (besides the naphthol crystals,) sulphuretted hydrogen, thionaptholes, carbolic and cresylic acid, thiophenols and other products, in order to secure a perfectly pure product. This I accomplished by passing a current of steam through an aqueous solution of naphthalin, expelling all volatile by-products, and thus obtaining naphthol in a state of the greatest purity. The first product is of the beautiful silvery scales which I exhibited, supplemented with others shown illustrating the effect of the further sublimation of the product, resulting in elegant white crystals; which procedure, however, as I remarked at the time, has the effect of producing a slightly pungent and disagreeable smell, evidencing a retrograde metamorphosis. So much for securing a chemically pure product.

Now as to the other mode of preparation, the product of which is not pure. The method of producing commercial naphthol is the one usually employed in effecting hydroxyl substitutions. This consists in first producing monosulphs (substitutions accomplished by means of strong sulphuric acid at certain temperatures), and by then melting the monosulphonated compound with sodium hydrate. In the case of the naphthalin treated thus with sulphuric acid, the naphthalen-monosulphonic acid is produced according to the formula, $C_{10}H_8 + S.O_4H_2 = C_{10}H_7S.O_3H + H_2O$. This, upon being melted with sodium hydrate, yields naphthalin hydroxyl, or naphthol, as per formula $C_{10}H_7S.O_3H + 2(NaOH) = C_{10}H_7S.O_3Na + OH_2 + NaOH = C_{10}H_7OH + S.O_3Na_2 + OH_2$. This naphthol is usually purified by distillation and brought to market as crystalline masses of a reddish color and of a pungent, diagreeable odor, as shown by the specimen which I exhibited to the Society.

Simply dependent upon difference of temperature employed in the sulphonation of the naphthalin, α-naphthol or β-naphthol is produced by these processes.

At the time when I read my paper before the Philadelphia County Medical Society, there was little question of the relative merits of α-naphthol and β-naphthol. The assumption in my mind was, for the reasons assigned, that there could be no essential difference in the qualities of the products. Since that time, however, the question, then arising, as to their relative merits finds frequent mention in medical journals and is now likely to be sifted to the bottom. The question is determinable on a sufficient amount of empirical evidence, and in no other way. I have said that the difference in the two products is dependent simply upon difference of degree in the heat in the evolution of the products, and I have also given presumptive proof that sublimation pushed beyond a certain point produces ill-effects in the product. There is no evidence yet before me which would go to show that the products of β-naphthol with which experiments were made to its discredit were pure, or were anything else than the commercial article, which I have already shown to be impure. Nor could the answer be made to this position by saying that both products probably stood upon the same footing, as being of the commercial kind, both impure; for as the condition which produces different varieties is dependent upon more or less heat, it may very well be that difference of degree in heat affects also in different degrees the elimination of by-products. In one word, the basis of experimentation, if not scientific, must make all reasoning from it unscientific. Therefore I have nothing to say on this topic, but that the question of whether or not the β variety of naphthol is poisonous is, so far as published statements go, not determined, and that it cannot be conclusively settled until commercial products are ruled out and a sufficient number of experiments in competent hands have been tried. So far as I have seen comments upon the use of β-naphthol to its disadvantage I have seen it assumed that α-naphthol has no toxic quality at all. It is not so explicitly stated but the inference is left in the reader's mind that α-naphthol is not a toxic, and that β-naphthol is.

I have now cleared the way to the true basis

for the determination of the question. The question is not whether β-naphthol has or has not some toxic quality, but which of the two naphthols has, if any, more toxic quality than the other. To the determination of the question of absolute poisonousness I contribute my mite by repeating some of the results of my experiments and practice already published and since amply confirmed and increased. It is true that my results, relating only to β-napthol, are not relevant to the point as stated, but they at least afford some contribution to the general question of absolute, not relative, toxic effect. They will at least, as far as they go, show that the pure β-naphthol is not poisonous in any sense beyond that in which many medicines are poisonous. In the broadest sense anything not food is poison and even through idiosyncrasy what is to ordinary persons food is sometimes to others poison, as witness the effect of strawberries and many other foods upon certain subjects. Ascending from this relativeness of poison to abnormal pathogenic conditions lies an immense range of poisonous qualities inherent in certain forms of matter, until we reach what we conceive of as true poisons merely because they present themselves in small bulk.

I have dissolved half a grain of pure β-naphthol in 3,000 parts of water and have taken it myself. It produced some heartburn and dizziness and a slight sensation in the lumbar region. These symptoms disappeared after taking the same dose for several days in succession, the urine exhibiting traces of naphtholic compounds, but no albumen or blood. I then increased the dose to four grains per day for six successive days, followed by no untoward symptoms, increased warmth in the stomach after imbibition being followed by increase of appetite. Dr. Schofield, of Albany, reported to me that, at my request, he had used the β-naphthol experimentally, and afterwards largely in practice in the Albany Hospital, where its excellence is now firmly established, being used to the almost entire exclusion of other antiseptics for wounds, and for the disinfection of the wards of the hospital. His experience, as well as that of Kaposi and others, has led me to employ it in both private and hospital practice with eminent success. I found that it fully sustained the claim of Kaposi as to its efficacy in scabies, psoriasis, and chromophytosis, as well as in some of the chronic forms of eczema, in which it not only allayed the attendant itching, but lessened infiltration. I have said that I found it a most useful detergent and deodorant in treating wounds and indolent ulcers, in removing the fetor and establishing healthy action of the parts. In aqueous solutions of half a grain to the fluid ounce of water, I have used it to great advantage, as a vaginal injection, in leuchorrhœa and uterine carcinoma. Equally efficacious have I found it in both male and female gonorrhœal affections. In diphtheritic affections it forms a most useful gargle, and removes well the fetor of catarrh and other affections of the buccal cavity. In my hands, combined with lard or gelatin, it has also been very effective in squamous and fissured eczema.

To proceed further would be only needlessly to repeat the account of my experiments and practice, published in THE JOURNAL, of the date mentioned, so I here pause with the mere statement that I have seen no reason since to change my opinion of the efficacy and innocuous characteristics of β-naphthol, if pure, and to reaffim from my own experiments and from those made at my instance, that the β-naphthol, when in that condition, has been found through long trial one of the most useful medicines and medicaments that have ever come within the physician's power to employ in the treatment of various complaints. Naphtha and petroleum, those wondrous reservoirs for the needs and arts of mankind, have nothing in their repertory greater than this to boast. Late experiments of mine with it in the treatment of obstinate constipation have had results, to me, of the most surprising and gratifying kind. I conclude, therefore, by reasserting all that I have previously said elsewhere of the excellence of pure β-naphthol. As none of my patients have experienced from its administration the toxic effects mentioned in some medical journals, I cannot be brought to consider it absolutely toxic. I await the result of properly conducted experiments to determine the relative toxic quality, if any toxic quality inhere in them, of the two varieties of naphthol.

TWO CASES OF MELANOTIC TUMORS IN THE LUNGS.

BY F. WATSON TODD, M.D.,
OF STOCKTON, CAL.

I have failed to find, in a careful reading of the best medical journals of our country, for twenty-five years, a case in any respect like two that have occurred in my practice, a report of which, I have thought, was due to my brethren of the profession, to whom I owe so much.

In the spring of 1864, while living at Auburn, Cal., I was called about 9 A.M. one day, to see a Mr. R., about 60 years of age. I found him in bed, coughing up and expectorating, but not vomiting, large quantities of black grumous blood, since midnight. His wife told me he had returned the evening before from Sacramento, where he had been for a month, under the care of Dr. F., whom I knew as one of the leading physicians of that city, and who, she said, had been treating him for some hepatic disease.

On auscultation I found below the right nipple, lower lobe, a considerable tract impervious to air, but a clear vesicular murmur elsewhere through-

out the right, and the whole of the left lung. The heart sounds were normal, no increase of temperature, no apparent cancerous cachexia. I had no difficulty in arresting the hæmorrhage, and wrote to his Sacramento physician describing his condition, and received an answer, saying that I was mistaken in the belief that I had found disease implicating the right lung; that he was suffering from chronic hepatitis, and that I would find that the hæmorrhage was from the stomach, and that it would prove to be salutary.

The second day his improvement continued, and he was put on the tr. ferri chloridi. At my morning call, on the third day, I found my patient dressed, and at the table, with a good sized beefsteak, eggs, warm rolls, and coffee before him, with which he was enjoying the morning paper. After a jocular remark I dismissed the case, and rode to the country. Upon my return to town an hour afterwards, a gentleman whom I met said: "So Mr. R. is dead?" I replied "no," and told him how I had left him an hour before. "Nevertheless he is dead," said he. It was so. When he had finished breakfast, his wife, wishing to sweep the room, had thrown over his head a light covering, that he might not inhale the dust, and when she removed it she found that he had passed quietly away. In spite of much opposition I was permitted to make an autopsy; a promise having been exacted that I would confine the examination to the thoracic cavity. Upon removing the sternum I verified my diagnosis of pulmonary disease, by the discovery of two melanotic tumors, the size of half a hen's egg, and the collapsed shriveled remains of a third, from which came the black blood. There was extensive pigmentation of the surface of both lungs, and a large ante-mortem clot in the left ventricle, which, I presume, was the immediate cause of his sudden death, as there had been no more hæmorrhage.

In November, 1872, I had removed to this city, and at 11 o'clock one night was called by the landlord at my hotel to see Captain F., a bachelor, æt. about 55 years, whom I found in the office, leaning over a cuspidor, breathing with great difficulty, with a cold moist surface, small frequent pulse, and expectorating, with almost no cough, a considerable quantity of frothy serum, which had a slight pinkish tinge. These symptoms soon gave way under the use of the fl. ext. ergot and belladonna, and the Captain had a good night. I made, the next morning, a careful examination, and found, on auscultation, a dull space in the right lung below the nipple, the size of the palm of a small hand. I failed to find evidences of disease in the heart, kidneys, or any other organs. My patient returned to his mine in the mountains, some eighty miles away, by stage. In a few weeks he visited Stockton again, and again I was called, about the same hour at night, to the hotel office, to find the Captain in the same condition described above. He was relieved as before. It seems that he had been given a bed in a cold room, as formerly, and as soon as he had got between the cold sheets the paroxysm began. Whether the medicine he took, or the mountain air had any effect or not, he was free from these attacks at home, and enjoyed apparently fair health.

The following April I requested him to met me in San Francisco, when our State Medical Society would be in session. He came, and the first night in that city, had a severe attack. He was seen by two of the most eminent men of the city, Professors in each of the medical schools, and each declined to express an opinion as to the nature of the disease. Learning from him that he would that summer visit his old home in Virginia, I induced him to go by way of New York, and gave him a letter to the late eminent Professor F., with a detailed statement of his case. He was examined carefully by that gentleman, who was kind enough to write me his opinion in full, in which he said that he, with his son, the present distinguished Professor, of New York City, had found slight hypertrophy of the left ventricle of the heart, but that there was more serious disease of the kidneys, the urine showing sufficient albumin to warrant a diagnosis of chronic interstitial nephritis.

The Captain married after his return to this State, had two children, removed to Stockton, and a few months after had a hæmorrhage, not severe, of dark grumous blood. This was repeated every few days with little cough, until he became so weak that he was confined to his bed, and finally died from exhaustion. An autopsy, made in the presence of a half dozen of the leading physicians of the city, revealed large melanotic tumors of the lower lobe of the right lung, from the rupture of one of which came the peculiar hæmorrhage.

As in the former case, I could only get permission to make the inspection upon giving a promise that I would confine it to the thorax, consequently I was unable to verify the diagnosis of renal disease, but there was no hypertrophy of the heart ventricle. The absence of indications of malignant cachexia made the diagnosis in both of those cases difficult, and in neither could I do more than fix the seat of the disease, and even this found dissent from some of the ablest men of our profession.

May 19, 1888.

THE MEDICO-CHIRURGICAL COLLEGE of Philadelphia and the Philadelphia Dental College have placed a contract for a large building to accommodate both schools.

MEDICAL PROGRESS.

CODEINE TO RELIEVE PAIN IN ABDOMINAL DISEASE.—DR. T. LAUDER BRUNTON says of the use of codeine to relieve pain in abdominal disease: The class of cases in which I have used it is, I think, somewhat different from those in which it has previously been recommended, because while Barbier, Aran and others have chiefly employed it in gastralgia and painful disorders of the stomach, I have used it chiefly in pain affecting the intestines and lower part of the abdomen. The kinds of cases in which I have used it have been very varied. As examples I may shortly described one or two. In one case which I saw with Dr. Eccles, there was high temperature, intense pain in the right iliac fossa, with considerable swelling, so that there could be little doubt that there was inflammation around the cæcum, although examination after the acute symptoms had subsided showed that there was also pelvic cellulitis. In this case one grain of codeine, given in the form of a pill, relieved the pain at once, and repetition of the dose whenever the pain began to return prevented its becoming at all severe.

In another case, seen with Dr. Philpot, of Croydon, a lady, aged 50, had pneumonia of the right base, a greatly dilated heart with very irregular action, pulse so rapid and weak that it could hardly be counted, and pain over the epigastrium and spreading out from it. She was slightly jaundiced, and a tumor was felt in the right lateral abdominal region, which descended with respiration, but was partly covered by intestine, and could be moved from side to side, so that it seemed to be renal rather than hepatic. As no *post-mortem* examination was obtained the exact diagnosis could not be established, but the administration of codeine in half-grain doses relieved the pain, as Dr. Philpot said, "as if by magic."

In another case, seen with Dr. Pardington at Tunbridge Wells, there was pain in the abdomen depending upon a mass of impacted fæces in the transverse colon. In this case codeine seemed to be especially indicated, as one wished to relieve the pain without interfering with the action of the bowels. In grain doses codeine relieved the pain, and the use of copious enemata, aided by washing out the stomach, cleared away the impacted mass which had given rise to the disturbance. I have tried codeine in cases of long-continued abdominal pain for which no definite cause could be assigned, as no tumor could be felt, and the functional disturbance did not seem sufficient to warrant a diagnosis of malignant disease. I have tried it in cancer of the liver and pancreas with success in relieving pain, and also in numerous cases where the age of the patient, the presence of diarrhœa, tenderness on pressure, and visible peristaltic movements, and thickening of the gut, easily perceptible on palpation, led to the diagnosis of malignant disease in the intestine, although inability to obtain a *post-mortem* examination prevented the confirmation of the diagnosis. In such cases I generally begin with half a grain, in the form of a pill made up with extract of gentian, three times a day; and if this is insufficient to control the pain I increase the dose to a grain, and give it as frequently as seems necessary. As a rule, I find that it does not produce drowsiness, nor has it interfered with the digestive functions.

To sum up, the results I have obtained from the administration of codeine have satisfied me that it has a powerful action in allaying abdominal pain, and it can be pushed to a much greater extent than morphine without causing drowsiness or interfering with the respiration or with the action of the bowels. It is, therefore, specially indicated in such a case as Dr. Philpot's, which I have already mentioned, where the dilated heart and consolidated lung tended to make one afraid of morphine. Codeine is also specially indicated in a case like Dr. Pardington's, where one wished to relieve the pain without interfering with the action of the bowels. On the other hand, in cases where there has been much diarrhœa, as in some cases of malignant disease of the colon or rectum, the absence of any tendency to lessen peristaltic movement is rather a disadvantage to codeine as compared with morphine or opium.

I have found that in cases of long-continued enteralgia without organic disease, it has continued to relieve pain for months together, without the dose being increased beyond one grain three times a day, and I found the same to be the case where the presence of a tumor, in addition to other symptoms, had led to the diagnosis of malignant disease.

It is interesting to follow the vicissitudes of a drug, and to notice how its use extends or diminishes until at last it finds its right place and maintains it. Thus digitalis, while mentioned in the London *Pharmacopœia* of 1721, was excluded from that of 1746. It again appeared in 1788, and since then it has held its place.

Possibly codeine, after falling into almost complete disuse as an analgesic for many years may again regain a more or less important place amongst the remedies which enable us to relieve pain.—*British Medical Journal, June 9, 1888.*

OLD-STANDING EMPYEMA SUCCESSFULLY TREATED BY "PERFLATION."—DR. CHARLES E. OLDMAN writes: The following case is of interest, and suggests a more extended trial of this method of treatment, as recommended by Dr. Wm. Ewart in *The Lancet* of July 31, 1886.

F. A., aged 18, had scarlet fever in July, 1882, followed by an attack of pleurisy, with effusion terminating in empyema, which was first opened

by me in consultation on January 29, 1883. Some time after this he was admitted into Guy's Hospital under Mr. Bryant, when a free opening was made, and the usual method of treatment by irrigation was carried out, but with little benefit. After a long absence in the country he was admitted a second time into Guy's Hospital, when a portion of rib was resected, so as to allow better drainage and facilitate the washing out of the pleural cavity; still the discharge continued to be very profuse, in spite of every attention being paid to his general health and more than one visit to the seaside. On April 27 of this year, being five years and three months since the date of the first operation, I commenced the method of treatment by "perflation," or the injection of air which has passed through a strong solution of carbolic acid. For this purpose a solution of 1 to 10 was used. At first considerable difficulty attended the insertion of the cannula, owing to the narrowing and tortuosity of the sinus leading into the pleural sac, which had not been occupied by a drainage tube for many months, so that a very small one was used; but this did not prevent a sufficient supply of air being injected, although it somewhat retarded the escape of the pus. The operation was repeated once daily by the patient himself. At first the discharge appeared to be but little influenced by treatment until about the eighth and ninth days, when a large quantity of very offensive pus was expelled—indeed, so offensive was it that the inmates of the house had to leave it for an hour or two after the patient had used the injection. After this the discharge diminished considerably, becoming less offensive, and finally ceased altogether on the eighteenth day. He is now quite well, and daily gaining strength and flesh. During the first injection urgent symptoms of dyspnœa and fainting occurred, quickly passing away, however, on discontinuing the injection and the patient assuming the horizontal position. This I take to have been caused by the intra-thoracic pressure having become suddenly increased, and the action of the heart being interfered with thereby. It only occurred once, and probably would not have arisen at all if the opening had been large enough to allow of the pus escaping in a corresponding ratio to the admission of the air, or if there had been a counter-opening. Altogether it is a very simple and satisfactory method of treatment.—*Lancet*, June 16, 1888.

THE HOT INTRA-UTERINE DOUCHE IN PURULENT ENDOMETRITIS.—In a paper read before the Gynæcological and Obstetrical Society, of Baltimore, May 8, 1888, DR. WM. E. MOSELEY, called attention to a method of treatment that, although not new, has received far less attention than its merits deserve, for in his experience it has been perfectly safe, easy of application, has caused the patient no pain or serious after-symptoms, and above all has been promptly *curative* in its effect; *free* douching of the uterine cavity with warm, or rather hot water, either plain or medicated. The water can be injected with a fair amount of force; it reaches all portions of the endometrium, washes the discharge out of the mouth of the glands, and so reaches parts that cannot be reached by the ordinary applications, and has no destructive effect on the mucous membrane as do the more active caustics.

It is important to have the cervical canal freely enough dilated to permit a ready exit of all the water injected, and in many cases of any considerable standing such will be found to be the case. He has used a double catheter and has injected directly through a small flexible male catheter, and has found both methods equally satisfactory. One thing he would insist upon, is the use of a large amount of water, from one to two gallons, and at a temperature of from 100° to 110° F. He has used the water clear and also medicated, and both have given equally satisfactory results.

This method of treatment is perfectly rational, and is the procedure that any one would follow in any other cavity containing pus.

He believes that we would get much better results from intra-uterine medication, if we took the precaution to first *thoroughly* remove all secretions from the endometrium before making any application. This he has tested, and with only the happiest result.

THE COMPOSITION OF NORMAL URINE.—MM. YVON and BERLIOZ have recently presented a memoir on this subject to the Académie des Médecine. Among 6,000 analyses they chose as data those in which there was no sugar, no albumin, and no bile pigments, and which appeared to accord with the mean elimination now admitted. Of these there were 661, including 347 from males and 314 from females, all adults, and all French. The following table shows the results:

	Males.	Females.
Quantity in 24 hours	1300 cc.	1100 cc.
Density	1022.5	1021.5
Urea, per litre - grams	21.50	19
" " 24 hours "	26.50	20.50
Uric acid per litre "	0.50	0.55
" " " 24 hours "	0.60	0.57
Phos. acid " litre "	2.50	2.40
" " " 24 hours "	3.20	2.60

It is seen that the quantity of the various elements eliminated is greater in males than in females, though in the case of uric acid there is but little difference, this being due to the less active life of females. The ratio of the quantity of uric acid eliminated in 24 hours to the amount of urea is in males 1:44.50; in females 1:36.50; mean 1:40.50. The ratio of urea to phosphoric acid is about 1:8 instead of 1:10, as has been supposed. —*Bulletin Médical*, June 20, 1888.

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SATURDAY, JULY 14, 1888.

A SECTION OF PHARMACY AND MATERIA MEDICA.

Exhibitions of pharmaceutical preparations, surgical instruments and appliances, and to some extent periodicals and books, in connection with the annual meetings of the American Medical Association, and with many of the State Medical Societies, have been increasing in magnitude from year to year, until they undeniably attract no inconsiderable part of the attention of many of the members attending these meetings. As stated in the *American Lancet* for June, 1888, the "exhibition is simply a collection of drummers with their samples. They are polite, intelligent and obliging, but after all they are tradesmen pure and simple, whose sole object is to make money for the firms they represent." And we may add that, as such tradesmen, they have the right to assemble in any city where the Medical Association may hold its annual session and procure such rooms for their exhibition as they please, and conduct it under such regulations as they may adopt. The constitution and by-laws of the American Medical Association contain no provision for any such annual exhibition; and the Committee of Arrangements are not required to give any other attention to the subject than to be sure, in engaging the necessary rooms for the accommodation of the meetings of the Association, that no such exhibitions shall be allowed in the vestibule, anterooms, or halls leading to or adjoining any of the rooms to be occupied by the Association or any of its Sections. Beyond thus securing the accommodations necessary for the meetings and business of the Association on such terms as will prevent exhibitions and obstructions of every kind from being placed on the same premises or in the entrances thereto, we do not see how the Association or its Committee of Arrangements can rightfully have anything to do with combinations of pharmacists, food and drink manufacturers, instrument makers, etc., for the joint exhibition of their various samples.

So far as the real interests of the medical profession are concerned, and especially the interests of the members of the American Medical Association, there is no need for any such extensive exhibit of incongruous materials. The several Sections of the Association are the proper places in which new remedies or new preparations of old ones, new or improved instruments and appliances, should be presented by some member who has investigated the article and deems it worthy of the attention of the profession. It is in the appropriate Section that all alleged novelties and improvements can be most advantageously examined and their merits and demerits be intelligently discussed. It is doubtful whether a single new remedy or new appliance in surgery of practical value has been found during the last thirty years, that has not been either described or exhibited in some one of the Sections.

The establishment of a special Section of the Association, to be called the Section of Pharmacy and Materia Medica, to supersede the outside exhibitions, was suggested in the *American Lancet*, and in some other periodicals. If the proposed new Section is to be made a room for the general exhibition of drugs and pharmaceutical preparations, the size of the room and the expense and time required for fitting it up would add materially to the labor of the Committee of Arrangements and to the orders on the Treasurer of the Association; and yet perhaps be able to present a less variety of articles than could be readily seen in half of the regular apothecary shops in the same city. But if the object is to be the presentation of only really new remedies and improved preparations and have their value carefully canvassed, the present Section of Practice of Medicine, Materia Medica and Chemistry is better constituted for doing the work well than it could be done by a Section composed of pharmacists and

students of materia medica only. The presence of a large proportion of practitioners of actual clinical experience is essential for the proper consideration of such articles as are here intended.

TYPHUS ICTERODES.

DR. GEORGE DIAMANTOPULOS, of Smyrna, has just published, through Urban and Schwarzenberg, of Vienna, a volume of 135 pages on "Typhus Icterodes of Smyrna," which appears at times endemically, and from time to time epidemically on the coast and in the islands of the Ægean Sea, generally in the summer and autumn. From a study of the disease during the past fifteen years Diamantopulos concludes that it is an acute, miasmatic, non-contagious disease. It is a disease *sui generis*, and notwithstanding the great symptomatic similarity between it and many classic affections, yellow fever, Griesinger's bilious typhoid, and many cases of bilious remittent fever, it is identical with none of these. Thus far its etiology is obscure.

The symptomatology of the affection is not uninteresting. The disease begins with a very intense chill, or with a simple rise of temperature, with, in many cases, an intense headache; the temperature usually going, on the second day, to 39.5° or 40° C. There are pains in the muscles and joints, especially of the lower extremity, pains in the spine, especially in the lumbar region, a feeling of muscular weakness, so that the patient cannot sit up in bed, oppression of the chest, and later præcordial anxiety, the sensorium is dull, the facial expression stupid and apathic, and the patient is anxious and restless, casting himself about in bed, and is sleepless. From the beginning and through the first stage of the disease the face is red and turgescent, the eyes red, injected, moist and glistening, and to a certain extent prominent, the facial expression being a good deal like that of a drunken man. The tongue is broad, looks swollen, is moist and whitish, whitish-yellow, or yellowish-brown. The epigastrium is sensitive on pressure, as are the hypochondriac regions. The patient complains of a sensation of tension and fullness, is somewhat swollen, and gives some resistance to palpation. The liver is enlarged, and the spleen to a less extent. As a rule, the mesogastrium and hypogastrium are soft and not sensitive. The ileo-cæcal region shows nothing abnormal. The muscles of the extremities, especially of the calves and forearms, are sensitive to touch, and later contract spontaneously and on pressure.

On the second or third day vomiting appears, containing ingested food at first, generally uncolored, but later, sometimes even at the beginning, it consists of "bilious," yellowish-green, watery masses. It occurs tolerably often, is often obstinate, and may be caused by pressure in the gastric region. In such cases the stomach is sensitive, refusing the slightest quantity of food or medicine. Constipation appears at some time during the first two or three days, to be replaced by copious watery, yellow colored stools. In the subsequent course of the disease dysenteric, bloody-mucous stools appear in many cases, with colicky pains. A prominent and frequent symptom is a feeling of burning and contraction in the pharynx, which often makes swallowing difficult and painful; but besides slight redness and swelling of the mucous membrane there is nothing abnormal about the throat. There is a slight cough in many cases, with bronchial râles, signs of laryngeal catarrh, and abnormal sensations in the larynnx and trachea. During the first few days the sensorium is clear as a rule, though delirium may occur in severe cases, and may be so intense as to endanger the life of the patient.

The skin in the first stage of typhus icterodes is usually dry, but sometimes there is slight sweat, which does not affect the condition of the patient. The urine is changed in quantity and quality not only in different cases, but even in the same stage in individual cases. Not infrequently it contains albumin. In many cases there is strangury, dysuria, or complete suppression, lasting for a longer or shorter time, and often uræmia, eventually causing death.

On the third or fourth day there occurs marked remission of the fever, or often complete absence of fever, beginning in the evening and lasting through the night. This marks the beginning of the second stage: the patient feels better, sleeps a few hours, his whole appearance is changed, the face becomes pale, the redness of the eyes diminishes, the pulse falls to 90 or 100, is softer and weaker, and the nervous symptoms moderate, but do not disappear, though in some cases they become more intense, and others appear. Icterus appears in the second stage, on the fifth or sixth

day. At first the conjunctiva becomes yellowish, and soon after this the whole cutaneous surface takes on a golden-yellow, orange-yellow, or greenish-yellow appearance. The urine also becomes yellowish, and contains bile pigment. A very frequent symptom of the second stage is copious epistaxis, often difficult to control, and recurring. Another constant symptom is a generally strong and regular, though sometimes irregular pause of the pulse every 5, 6, or 7 beats, which occurs a short time before the appearance of the icterus. After from a few hours to two days this irregularity may disappear, initiating a favorable third stage, or it may continue for a longer time, marking a severe third stage, which may end fatally.

There are hæmorrhagic cases, in which bleeding takes place from different organs: the stools and urine are bloody, and vibices, petechiæ and blood-effusions appear in the skin.

In mild cases there is a remission of all the symptoms after the appearance of icterus, and convalescence is established by the seventh or ninth day. In severe cases, on the contrary, death may occur early, before icterus has fully appeared, or during its appearance. In such cases the severe symptoms remain unchanged, or become more severe, the pupils dilate, delirium and coma supervene, and collapse and uræmia end the scene. In still another class of cases the disease is more prolonged, and the fever again rises after the remission, and a typhoid stage comes on, of varying intensity according to the severity and duration of the morbid process. In this stage all the symptoms are very similar to those of typhoid.

Such is the general symptomatology of this peculiar disease, which may possibly become in the future more than a curiosity to American physicians.

THE RELATION OF DIABETES TO HEART DISEASE.

Diseases of the circulatory apparatus, and especially of the heart, occupy but a comparatively small space in the literature of diabetes, either clinical or anatomical. JACQUES MAYER, of Carlsbad, attributes this partly to the fact that in searching for the pathogenesis of diabetes, pathologists have given most attention to the organs supposed to be directly concerned in the production of the disease. Seegen, in his work on diabetes, in which he published 140 cases, has but little to say of the symptomatic and physical relations of the heart and blood-vessels. In 11 cases only is the condition of the heart mentioned; in 6 cases it was normal, there was hypertrophy of the right heart, a feeling of agitation or palpitation in the cardiac region, disposition to angina pectoris, slight mitral insufficiency, and a systolic murmur of the left heart, in one case each. In his anatomical considerations of diabetes there is but little material, drawn chiefly from Rokitansky's 30 cases. Cantani's lectures on diabetes are as meagre of information concerning the state of the heart and vessels as is Seegen's book.

Senator mentions more specifically the state of the circulatory organs in diabetes, and says that there are no striking or characteristic symptoms on the part of the heart and vessels in this disease; that the arteries are often atheromatous, but not exceptionally often. English authors have mentioned the atrophy and fatty state of the heart-muscle, and Donkin mentions that in consequence of the faulty propulsive power of the heart there is dropsy, or sudden death from syncope; that there is usually marked atrophy of the muscular system, with small and frequent pulse. R. Schmitz called attention some years ago to a complex of symptoms in advanced cases of diabetes, consisting of shortness of breath, a not infrequently suddenly appearing anorexia, vertigo, somnolence, and tendency to syncope, which symptoms he attributed to relaxation and fatty degeneration of the heart, In 80 out of 109 cases Schmitz noted soft and small pulse, sometimes accelerated, again very slow, cardiac impulse weak at all times, scarcely perceptible, and cardiac and vascular tone weak and very indistinct. Leyden called attention to asthma in diabetes as being of the type of cardiac asthma, though he attributed the attacks to physical disturbances.

Lecorché published a few years ago 14 cases of diabetic endocarditis—endocarditis complicating subacute and chronic diabetes, the symptoms of the endocarditis being the usual symptoms of this affection. He attributed it to the action of the saccharinized blood upon the endocardium. Vergely asserted, in 1883, his belief in a relation between angina pectoris and diabetes, and published four cases of diabetes in which there was

angina pectoris, even in the first stage of the diabetes, but in which there was no other cardiac disease than the angina. Frerichs seems to find no particular relation between diabetes and heart disease except the cardiac weakness in diabetic coma. Purdy, however, called attention some time ago to the presence of high arterial tension in diabetes.

The latest contribution to the subject of the relation of diabetes to cardiac disease is a paper by J. Mayer, in *Zeitschrift für klinische Medicin*, Bd. 14, Hft. 3. Mayer has, on account of his residence at Carlsbad, exceptional opportunities for studying diabetes in all its phases, and with all its complications. The present paper is based on a study of 380 cases of diabetes, 266 males, and 114 females, 65.26 per cent. being between the ages of 40 and 60 years. Of the 380 cases, 337 were in the first stage of diabetes, and 47 in the second stage; of the latter 26 were under observation during both stages. His cases show that increased cardiac volume, whether from hypertrophy or dilatation, is much more frequent in diabetes than one would suppose from consulting literature, it having been found, without other anatomical lesion, in 82 of the 380 cases, showing that cardiac enlargement in diabetes is not a mere coincidence. There can be but little doubt that this enlargement is due to the chemical irritation of the pathological blood—irritation caused by sugar and urea, by glycæmia and azotæmia.

The fact of the increased amount of urea excreted by diabetics is too well known to require more than mention, as is the fact that the blood of diabetics contains from .65 to .8 per cent. more sugar than normal blood. So also in regard to the injurious action of polyuria, glycosuria, and azoturia on the kidneys. The experiments of Grawitz and O. Israel in regard to the relation between renal disease and cardiac hypertrophy (*Virchow's Archiv*, Bd. 77, S. 315), and Israel's work on the relations between renal disease and secondary dangers of the circulatory system (*Virchow's Archiv*, Bd. 86, S. 299) have an important bearing on the subject discussed by Mayer, as showing that cardiac hypertrophy is caused when there is an excess of waste material in the organism, and which must be excreted. The healthy kidney can meet large demands upon it, but in diseased conditions—sooner or later according to the individual—insufficiency will result, leading to increased activity of the heart, and then to cardiac hypertrophy.

O. Israel, during his service at the Berlin Charité, found that of the cases that died of diabetes 10 per cent. had cardiac enlargement, without valvular or arterial lesions, or renal disease. Mayer has examined Virchow's necropsy reports (1856–1887), and among the 69 cases with the diagnosis "diabetes mellitus," the heart was enlarged in 9 cases, exclusive of those in which there was enlargement from anatomical cause (vascular, valvular, or renal disease). This gives a percentage of 13, while Mayer's 380 cases show 21.6 per cent. In a number of other cases there was hypertrophy with chronic endoarteritis, while in some cases endoarteritis and hypertrophy were primary. There seems to be no question, or but little, that the arterio-sclerosis, the vascular dilatation, Gull and Sutton's arterio-capillary fibrosis, and Ewald's muscular hypertrophy of the small arteries, seen in renal affections, are the secondary results of cardiac hypertrophy, all being due, directly or remotely, to the pathological chemical composition of the blood. The cardiac lesions in diabetes, fatty metamorphosis, fatty infiltration, brown atrophy, hypertrophy, dilatation, and other anatomical changes seen in diabetes, are referable to the demands made upon the heart by the diabetic blood; and the sooner general nutrition suffers, the sooner urea and sugar formation exceed the individual limit, the sooner is there an attempt at some sort of compensation.

As regards the influence of these facts on the therapeutics of diabetes, it is evident that everything must be forbidden that can injuriously affect the kidneys and heart, since organs whose work is too great are easily affected by disease. The frequency of valvular lesions in nephritic patients, and of renal lesions in diabetes, is well known. In the 66 cases from the Berlin Pathological Institute, Mayer found 30 of renal disease, and its frequent occurrence in diabetes was asserted by Stokvis at the Congress für innere Medicin in 1886. In his 380 observations Mayer observed it in 64, though infrequently in the form of contracted kidney. The heart and kidneys, he says, must be spared by a suitable diet; nitrogenous food must be limited, and he has of late years used milk to a large extent, and can confirm the favorable opinion of Hoffmann on this subject, expressed at the Congress für innere Medicin.

THE DANIEL A. JONES HOSPITAL.

The corner-stone of the Jones memorial wing of the Presbyterian Hospital was laid last week, the present building being far too small for the demands upon it. The Board of Directors accepted the munificent gift of $100,000 from the estate of Daniel A. Jones and added to it by subscription over $50,000. The building now in process of construction will, when completed, be the finest west of New York City. The building will be six stories in height, with an imposing front, surmounted by a 150-foot tower, finished in red brick, with terra-cotta and stone trimmings. It will be absolutely fire-proof, with a perfect system of ventilation, and a capacity of 250 patients. Rev. Dr. Barrows delivered an address on "Christian Charities," in which he said that Mr. Daniel A. Jones was a man most deeply touched by human suffering, and had chosen a sublime monument to perpetuate his memory. Dr. Barrows considered it a propitious omen that the rich were obeying the injunction of Him who was the poor man's physician. At the close of this address Miss Ruth Jones, the little grand-daughter of Daniel Jones, stepped forward and deposited beneath the suspended stone a box containing the records of the hospital and other mementoes of the occasion. The massive stone was lowered and adjusted, after which the little girl gave it three raps with a mallet and said: "The corner-stone of the Presbyterian Hospital is now laid." Appropriate speeches followed by Charles L. Hutchinson, Esq., President of the Board of Trade, Dr. Woolsey Stryker of the Fourth Presbyterian Church, Dr. Breed of the Church of the Covenant, Dr. Withrow of the Third Presbyterian Church, and Mr. D. K. Pearsons.

In his address Mr. Hutchinson said: "We are gathered here in the name of the Great Physician to set the stone which shall be as the corner of the temple dedicated to the service of God. What grander temple could Daniel A. Jones build, what loftier monument could he raise to perpetuate his memory? Hard, indeed, it is in this day and generation to heed the Word of the Master: 'Lay not up for yourselves treasures on earth.' The temptations are so many and so great; the world has so much to offer; the heart finds such delight in things temporal. But how much better for themselves, their children, and their fellowmen, if now in their life-time they should begin to follow the example set by Daniel A. Jones, or the grand example set by one now on the platform, a near and dear friend of his—Mr. D. K. Pearsons. Better far to spend one-half of an ample fortune and leave a heritage of good and generous deeds and a beloved name to your posterity than to die with all the wealth of the Indies. There is much need in Chicago to-day of more devotion to the higher interests of life, to education, philanthropies, and humanities."

It is thought that the building will be completed some time in November.

TYMPANITES AND TYMPANITIS.

The indiscriminate use of these words for meteorism or flatulent distension of the intestines is exceedingly common — so common, in fact, that if usage can justify a continuation and sanction of error in the use of words, it may be assumed that it is proper to commit this error. But there is a limit to the justification of error by usage, and the error mentioned is beyond that limit. Tympanites cannot mean inflammation of the lining membrane of the middle ear; tympanitis can mean nothing else. The termination *itis* of the latter word shows that it means an inflammation. Tympanites is a Latin derivative directly from the Greek, and of the fifth declension. Tympanitis is derived from the Greek root τύμπαν, a drum, to which is suffixed *itis*, signifying that a drum (the tympanum) is inflamed. Tympanites signifies a condition of the intestines giving them a drum-like tension and sound. Lexicographers, medical and general have confused the two words, and it is not strange that medical writers have been confused by them. But it is perfectly clear that the words are not synonymous. There is already more than enough confusion of medical terms: Let us at least make correct use of the words whose meaning cannot be mistaken except by inattention.

THE BILL TO PERFECT QUARANTINE.

On July 5 the House Committee on Commerce reported favorably the bill recently passed by the Senate perfecting the quarantine service. It provides punishment for any person trespassing upon any grounds belonging to any quarantine reservation or for any master, pilot or owner of a vessel

entering any port of the United States in violation of the law aiming to prevent the introduction of contagious or infectious diseases into the United States. It also establishes quarantine stations at the following named places: At the mouth of Delaware Bay, near Cape Charles, at the entrance of Chesapeake Bay, at Key West, in San Diego harbor, in San Francisco harbor, and at or near Port Townsend, Puget Sound. The bill appropriates $542,000 for the construction and maintenance of the above stations and for the maintenance of the gulf quarantine (formerly Ship Island) $15,000. In its report the committee says it cannot too earnestly urge upon Congress the necessity of making ample provision for this important service. Heretofore it has been the custom to wait until an epidemic became flagrant in this country and then to make an appropriation in spasmodic haste, to be expended by the President in preventing its spread at an enormous cost, when a judicious and timely expenditure of a small sum would have prevented its original introduction.

EDITORIAL NOTES.

THE NEW YORK ACADEMY OF MEDICINE has received nearly $12,000 in subscriptions to its building fund.

A CLINICAL SCHOOL AT DETROIT.—The matter of establishing a clinical school in Detroit as a department of the University of Michigan, which has long agitated the people of the State, has finally taken definite form and will doubtless soon be realized. The new movement is to raise $200,000, to be placed in the hands of the regents to be used for the establishment of such a clinical department. Moses W. Field promises $20,000, Gen. Alger $10,000, and six others amounts swelling the total to $60,000 already.

THE COMMEMORATIVE MEDALS OF THE NINTH INTERNATIONAL MEDICAL CONGRESS subscribed for by foreign members have been forwarded to them through the State Department.

We learn from Dr. J. M. Toner, Washington, D. C., who has charge of the medals, that up to this time only about one-half of the medals subscribed for by home members have been applied for. He would be pleased if those that have paid for their medal would direct him how and where to deliver it. A paragraph to this effect was published in THE JOURNAL more than six months ago.

SOCIETY PROCEEDINGS.

GYNÆCOLOGICAL SOCIETY OF CHICAGO.

Regular Meeting, Friday, April 20, 1888.

THE PRESIDENT, HENRY T. BYFORD, M.D., IN THE CHAIR.

THE PRESIDENT exhibited a

UTERUS REMOVED PER VAGINAM FOR FIBROIDS.

It was about double the normal size. The fibroids had produced incurable stenosis, and were accompanied by almost constant pain of increasing severity. The patient was 42 years old, and has had four children, the youngest 20 years old. She is obliged to wash for a living, has been getting worse for two years, and during the past year has had to stop work every two or three days on account of suffering referred to the pelvis. She has been under treatment by prominent gynecologists, both for the stenosis and for the fibroid tumors, without avail. As nothing short of a severe cutting operation would have relieved the stenosis, it was thought that vaginal hysterectomy would be but little less dangerous, and would give permanent and complete relief instead of temporary and partial. It would remove the tumors with but little danger and thus forestall a possible abdominal hysterectomy or supra-vaginal amputation with the terrors so often connected with them. The whole uterus was enlarged and hardened and the cervix would form a bad stump in case of such amputation. Two of the tumors were near the serous surface, and one just under the mucous membrane. The stenosis extended half an inch above and a little below the internal os, and is of cicatricial hardness. The tumors were each about the size of a hickory nut. The patient did not have a bad symptom after the operation. The ovaries were not removed, as they were not diseased and were undergoing senile atrophy.

DR. J. H. ETHERIDGE reported a

CASE OF CÆSAREAN SECTION.

The operation was performed on February 21st. The whole pelvis was blocked up by a fluctuating tumor containing a hard substance. The index finger could pass up between the symphysis pubis and the tumor, which seemed to be in the posterior part of the pelvis. I could pass one finger easily, but I could not get two in, and with the utmost pressure of my hand upwards I could not reach the cervix. The patient was a young Irishwoman, 32 years of age, of a nervous temperament, and had borne three children. The first labor was normal. The second labor was terminated by instrumental delivery with some difficulty, and the third one, two and a half years

ago, was accomplished with the greatest difficulty with forceps. There was an obstruction to delivery found at that time, but what it was was not determined. I could not determine what the fluctuating tumor was, and the idea of puncturing it occurred to me upon my first examination, but fearing that I would open a pus cavity that would discharge its contents during the lying-in period, I was deterred from doing it. The patient was taken to the Presbyterian Hospital. The attending physician went with her in a carriage and administered chloroform *in transitu*. About half-past four she was etherized and the initial incision made from above the umbilicus, perhaps an inch and a half, down to the probable location of the reflexion of the peritoneum upon the uterus. The abdomen was very large, and in making the first incision the edge of the scalpel went through the abdominal wall and into the uterus itself. I supposed I was making a cutaneous incision, but the wall was so thin that the knife went through into the uterus. The steps of the operation after that were very simple. The incision was enlarged to about six inches, perhaps seven. The amniotic sac was not broken, and two or three sweeps of the knife carried it through the uterine wall and into the bag of waters, and there was a tremendous welling up, the water flowing out over the patient, the table, and everything else. Dr. Parkes was my vis-à-vis, and he immediately pressed the uterus laterally with the view of forcing the child up through the opening, and it came up breach first. There was no attempt of the uterus to contract. The child was easily taken out in a second of time, and two snap forceps put upon the cord, which was divided and the child given to the nurse. There was very copious hæmorrhage, though not alarming; the walls on both sides seemed to be springs of blood. The contraction of the uterus was secured by the pressure over both sides, no attempt being made to turn the uterus out of the cavity. The placenta was easily secured; the peeling off of the whole of it from the inside of the uterus was speedily and easily and cleanly accomplished. Uterine contractions failed to follow immediately. A hypodermic injection of ergot was given and snap forceps put on bleeding vessels until the hæmorrhage was controlled. The uterus was manipulated and pinched and every effort made to invite nature to set up contraction, which, after a space of seven or eight minutes, came on, feebly, not vigorously.

After the uterus was thoroughly emptied, I passed my hand down into the cervix to see if it was patulous, and I found all four of my fingers could go through easily up to the second joint, showing that there would be an outlet for the lochial flow. The appearance of blood at the vulva indicated that drainage from the uterus would be all that could be desired.

The closure of the uterus was accomplished by three rows of sutures; the first one, which brought together the mucous membrane, was made with a carbolized silk ligature. A larger ligature was used for the muscularis. A fine silk suture was used for the peritoneal covering of the uterus. In the mean time the uterus was contracting very steadily indeed, and the hemorrhage was well under control, so that by the time the muscular wall was brought together it was a dry wound. The abdominal wall was closed in the ordinary way with interrupted sutures and the patient was put to bed with stimulants and hot applications, and she reacted very well indeed. She ran along for twenty-four hours very well without any particular rise of temperature, but in the second twenty-four hours there was a gradual coming up of the temperature and peritonitis set in. I wished to take advantage of cathartics and get her bowels open, but every effort that was made to physic her, in the second twenty-four hours, was entirely futile. Injections by the rectum were attempted, but the pressure upon the rectum prevented the introduction beyond the sphincter ani of a rectal tube; in the meantime the temperature was going up and the patient getting weaker. Then it was decided to open the fluctuating tumor in the pelvis and see what it was. The patient was chloroformed and placed in the extreme lithotomy position. The posterior vaginal wall was found to be extremely blue. The Cæsarean section was performed about four o'clock in the afternoon, and this operation was done near the close of the third twenty-four hours afterwards, viz., about two o'clock. An incision was made in this bulging mass and the pus welled out in great quantities, amounting to about half-a-gallon. Upon introducing the index finger into the abscess cavity, a dermoid cyst was detected, the hair being easily detectable. The patient was put to bed after a thorough evacuation of the pus, but she never rallied from the shock of the operation and died in twelve hours.

It occurred to me, on first examining her, that this could not be an accumulation of ascitic fluid and that it must be pus. From the history of the case and the deduction that was speedily made, the decision was reached that abdominal section should be made and the child removed in that way, because in the examination one could feel up in the vagina, with the finger, a hard mass of something below the promontory of the sacrum that appeared to me would render it impossible to introduce forceps and to drag the child through; and if it was filled with pus, I was certain the woman would die of infection.

Dr. W. W. Jaggard read a paper entitled

A CASE OF CONSERVATIVE CÆSAREAN SECTION UNDER THE RELATIVE INDICATION, WITH TERMINATION IN RECOVERY.

Case.—Mrs. E. S., 36 years old, born in Rhenish

Prussia, married in the United States shortly after immigration. She had been a sickly child, unable to walk until her 7th year, on account of *Doppelglieder*, *i.e.*, rachitis. During infancy, she suffered from tuberculosis of the cervical glands, two depressed cicatrices being visible on the left side of the neck at the time of examination. Since her 7th year, she has enjoyed robust health.

First pregnancy: patient's first child was delivered May 13, 1882. Shoulder presentation, right scapula anterior position. Difficult delivery by version, decapitation, and extraction. Puerperium normal.

Second pregnancy, delivery June 20, 1883. Same presentation and position as in first pregnancy. Prolapsus of funis. Delivery by version, extraction, and forceps to the after-coming head. Septicæmia, puerperium six weeks.

Third pregnancy, induction of premature labor at the end of the seventh lunar month. Same presentation and position as before. Delivery by version and extraction. Child survived the difficult operation a few hours. Puerperium normal.

Fifth pregnancy, beginning of last menstruation June 1, 1887. *Status præsens*: The patient of strong frame, and well-developed muscles, is four feet seven inches in height, and 135 pounds in weight. Pregnant; near term; distance from ensiform cartilage to pubis 45 cm. (17½ inches); from ensiform cartilage to umbilicus, 22 cm. (8¾ inches); circumference around umbilicus, 87 cm. (34 inches). Shoulder presentation, right scapula anterior position.

Pelvic Measurements.

Distance between anterior-superior spinous processes,	27 cm. (10½ in.)
Distance between iliac crests	27 cm. (10½ in.)
External conjugate diameter (Baudelocque), - -	14 cm. (5½ in.)
Distance from sacro-coccygeal joint to sub-pubic ligament (A. G. E. Briesky), -	9 cm. (3½ in.)
Distance between the great trochanters, - - -	30 cm. (11.7 in.)
Pelvic circumference (Kiwisch)	85 cm. (33¼ in.)
Diagonal conjugate diameter	7.5 cm. (2.9 in.)
True conjugate diameter (estimated), - - -	5.5 cm. (2.14 in.)

Diagnosis.—Simple, flat rachitic pelvis, with so-called absolute contraction of the true conjugate diameter. Apart from the pelvis, the osseous system showed no marked signs of rachitis. There was no abnormal spinal curvature, antero-posterior or lateral, and the long bones were perfectly straight.

Indication for Operation.—Notwithstanding the fact that the pelvis was a typical example of the so-called absolutely contracted simple, flat, rachitic class, the history of former deliveries demonstrated plainly that the obstacle to the escape of the child through the natural passages was only relative, and not at all insurmountable. Both parents were undersized, with relatively small heads, and the children were of a size less than is common. Moreover, the after-coming head was invariably made to present, and the accommodation of the passenger to the passages was thus greatly facilitated. The case was clearly one in which the woman could be delivered with safety, in all probability, by version, extraction, and craniotomy. On the other hand, the child was living, and Cæsarean section offered the possibility of saving both mother and child, although, of course, with enormously increased material risk. The question of the induction of premature labor, so late in pregnancy, was not considered for obvious reasons. In a word, the relative indication for Cæsarean section was presented.

A plain, unvarnished statement of all the facts in the case was made to the patient. After a week's deliberation, she elected the Cæsarean operation. In reaching this conclusion, she was assisted by the Roman Catholic priest of the parish, who remarked that the pregnant woman was the aggressor; that she had made the contract of maternity; the child was passive, and had made no contract. In strict equity, entirely apart from ecclesiastical considerations, the child's claim to life should be considered at least equally with those of the mother.

Operation.—The patient at once entered Mercy Hospital, The urine was examined, and found to be normal. The only preparatory treatment consisted in a daily bath, in tepid water, with the liberal use of soap, that the woman's mode of life before admission rendered necessary.

In the selection of the time for operation, I had determined to choose the latest possible moment before labor actually began. From the usual data—date of last menstruation, size and position of the uterus, abdominal measurements, length of the child measured by calipers (Ahlfeld), estimate of the size and weight of the child by palpation (Carl Braun)—it was possible in this case to make only a probable diagnosis of the time of gestation. I concluded that the woman was in the last fortnight of pregnancy.

Early Tuesday morning, March 6, 1888, the patient informed me that she would certainly fall in labor within the next twenty-four hours. She based her prediction upon dull pain referable to the lumbar and sacral regions, and beginning painful uterine contractions. She had been enabled to fortell her other confinements by similar sensations, and I was inclined to attach considerable importance in this case to subjective signs. The only objective symptom indicative of impending labor was a slight increase in the force and frequency of the intermittent uterine contractions. All precautions were taken with respect

to the most thorough cleanliness and disinfection of the operator, assistants, patient, instruments, and environment. The woman was in excellent condition; cheerful; pulse and temperature normal.

The steps in the operation were: After evacuation of the bladder, incision through the linea alba, from the navel to a short distance above the pubes, as low down as was safe, on account of the bladder. The diastasis of the recti muscles was well marked, and the peritoneum was incised without dividing much muscular tissue. No omentum nor intestines presented between the uterus and anterior abdominal wall.

The median line of the uterus coincided with the incision, and the usual manipulation to correct lateral version and axial rotation was unnecessary. Before making the uterine incision, Dr. Holmes placed one hand on either side of the cut, and rendered the abdominal parietes tense enough to prevent the access of fluid to the peritoneal cavity. I incised the anterior uterine wall in the median line at a point a short distance above the os internum with a scalpel, and rapidly enlarged the cut in the direction of the fundus, to the extent of 13 cm. (5 inches) with a blunt-pointed bistoury. The thickness of the uterine wall was about 1 cm.

The placenta was implanted over the line of incision, and the first gush of blood was frightful. The after-birth was quickly separated by the hand, the amnion ruptured, the child caught by the feet, turned, and delivered without laceration of the wound. The child uttered a lusty cry upon its liberation from the cavum uteri. I had requested an assistant to insert his index fingers into the upper and lower angles of the uterine incision, and bring them up close to the abdominal cut as an additional precaution against the escape of fluid into the peritoneal cavity. In the hurry of the operation, this request was forgotten. After, or, rather during the evacuation of the uterus, Dr. Holmes pressed this organ through the abdominal incision, by his hands applied on either side, while Dr. Riese brought the edges of the abdominal cut together behind the uterus, and effectually prevented all intestinal protrusion. The lower uterine segment, after this eventration, was firmly compressed by Dr. Holmes with the thumbs and index fingers of both hands, while the corpus uteri was enveloped in hot sterilized gauze compresses. Squibb's aqueous extract of ergot was exhibited hypodermically after the evacuation of the cavum uteri.

Hæmorrhage was trifling after the contraction and retraction of the uterine musculature, following the escape of the fœtus and envelopes, and was now fully controlled by digital compression. The elastic ligature was not used in the operation.

Twenty-one deep uterine sutures were inserted, including all the tissues down to the mucosa. For the introduction of these sutures, I used the long slender laparotomy needle of Thomas Keith. This needle passes with remarkable ease through the thick uterine wall, making a very small puncture, that is completely filled up with the suture material—in this case silk. After passing a finger through the canal of the cervix from above downward, the uterine cavity was irrigated with a 5 per cent. solution of carbolic acid, a bacillum containing 90 grains of iodoform placed within, and the wound closed. Union of the peritoneum over the line of incision was effected by a continuous silk suture. When the two rows of sutures had been drawn taut, the uterine wound was accurately closed, and perfectly dry. The uterus, in a state of normal retraction, was returned to the cavity of the abdomen. The toilet of the peritoneum was brief, as no fluid had escaped into the abdominal cavity, and the intestines had not at any time protruded. The abdominal incision was closed with interrupted silk sutures.

The duration of the operation was about one and one-quarter hours. From the extraordinarily simple *technique*, it would seem that the operation had been needlessly prolonged. But the uterine sutures were inserted deliberately and with care; then, too, time was occupied in securing uterine retraction by the application of hot compresses. The total amount of blood lost was not great—scarcely more than the average loss in normal labors. The chief element of danger lay in the suddenness of the loss, but no indication arose for the employment of transfusion, the apparatus for which was in readiness.

The shock from the operation was profound, but brief. The patient fully reacted within three hours. Her convalescence was uninterrupted.

Examination, April 20th, revealed the uterus nearly normal in size in mobile anteflexion. The parametrium was free from any sign of infiltration, and no trace of the sutures in the anterior wall of the uterus can be felt upon careful bimanual exploration. The vaginal finger easily outlines the anterior aspect of the uterus. The uterus is situated relatively high up in the pelvic cavity, but can be readily made to descend below the place of the inlet by gentle pressure above the pubes. I suspect the presence of adhesions—they must be very slight, however—between the fundus and the anterior abdominal wall.

The child was a small, but perfectly formed, and apparently mature male; weight 3000 grams, length 49 cm. The infant thrived on artificial feeding until the sixteenth day, when, after exposure to cold, it died suddenly in a convulsion. The autopsy disclosed intense pulmonary congestion. Although the child was apparently well-nourished, it is not improbable that inanition was a predisposing factor.

(*To be concluded.*)

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Diphtheria by Balsamics—Diphtheria and Sepsis of the New-born—Bloomingdale Asylum to be removed.

The fourth annual meeting of the Fifth District Branch of the New York State Medical Association, which was held in Brooklyn, in the latter part of May, was a very successful and attractive one. Dr. Edwin Barnes, of Dutchess county, presided with dignity and grace, and his annual address was listened to with much interest. In its introductory portion he spoke of the prosperity and the work, past and future, of the Branch, and of the over-crowding of the profession and its prevention; after which he took up the subject of diphtheria and its treatment.

Just now, he said, the treatment by balsamics, such as turpentine, benzoic acid, cubebs, etc., seemed to be again coming into favor, and it was of this method that he wished to speak particularly; presenting the results of his own experience with it in three distinct epidemics, as well as in the isolated cases which, like every general practitioner, he had, from time to time, met with. He then went on to give a résumé of 141 cases of undoubted diphtheria; every one of them being characterized the false membrane in the throat, the enlarged cervical glands, the asthenic fever, and fœtor of the breath peculiar to the disease. All cases of simple membranous angina, follicular tonsillitis, or herpetic sore throat, he said, were rigidly excluded; but if, as was claimed by a very high authority, many of these were mild cases of true diphtheria, the total number of cases observed would be greatly increased, and the showing made for the treatment adopted far more favorable than approved in the results of these 141 cases.

The first of the epidemics referred to, commenced in the town of Hyde Park, Dutchess county, in the month of August, 1875, and from Hyde Park it spread into the adjoining towns of Clinton and Rhinebeck. The disease declined in the spring of 1876, but broke out afresh in the autum of that year, subsiding again in the following spring. In the autumn of 1877, it re-appeared with unusual intensity, and after that gradually disappeared. The first patient that he treated in the epidemic of 1875, was an extremely self-willed and impulsive young lady who declined to take the classic mixture of tincture of chloride of iron and chloride of potassium, or to permit him to apply a spray to her throat. Without much confidence in its efficacy he then prescribed fluid extract of cubebs in syrup of tolu; but upon his next visit he was more than pleased with the change for the better that had taken place. The throat had lost its dusky hue, the membrane was separating at the edges; the breath had lost much of its fœtor, and the pulse, as diminished in frequency, with increasing strength. She progressed rapidly to convalescence, and since that time Dr. Barnes said he had relied upon cubebs as the sheet anchor in his treatment of diphtheria.

Of the 141 cases cited, seventy-six were males and sixty-five females. The youngest was 6 months of age, and the oldest 33 years. Twelve were fatal, and in three of these the cases were far advanced and almost hopeless before the treatment was instituted. These three patients were all children in one family, and, the attending physician having himself contracted the disease, they were left without care and without medicine for three days; the parents being entirely destitute. In another case that resulted fatally, the diphtheria trouble was complicated with whooping-cough, and the patient died from hæmorrhage, brought on by the paroxysms of coughing. Three other children, aged respectively 2½, 4 and 5 years, had syphilitic ozœna, which he regards as the most hopeless of complications, and no treatment proved of any avail when the disease had reached the nares.

In five of the fatal cases borax, lime-water, permanganate of potassium, sulphate of lime, and finally, persulphate of iron were perseveringly employed locally by means of the steam atomizer. In all of the fatal cases, death was by asthenia; none of the patients were asphyxiated, and he had never seen the disease inside the larynx when cubebs were given from the outset. The following was the treatment, which became almost a matter of routine, adopted by Dr. Barnes:

The patient was at once put to bed and kept there, and the following prescription ordered:

℞ Extract cubeb. fluid, - - - ℥ iss
Syrup tolutan. - - - q. s. ad. f ℥ iv
S. A teaspoonful every three hours.

This was alternated with a teaspoonful of a mixture, also given every three hours, consisting of a solution of three drams of citrate of iron and quinine in two ounces of water, with two ounces of syrup of tolu. These doses were for a child from 5 to 8 years. Stimulants were at first given freely in every case, but afterward only when the powers of life were evidently failing. An important part of the treatment was the use of as much nourishment as the patient could possibly be made to take. In one fatal case an immense blood-blister lined the fauces and was constantly swayed backward and forward with the movements of inspiration. The worst cases were those in which the membranes were of a dirty grayish or green color and sometimes almost black. The next worst form of membranes was that of a peculiar smooth, dead-white appearance, resembling a wax cast. Nearly all the fatal cases, as well as fully one-half of them which recovered, had diphtheritic coryza with the

characteristic discharge, at first thin and ichorous, excoriating the lip, and then sanious and accompanied with epistaxis. In one case, that of Dr. Barnes' own little daughter, after the membrane had disappeared from the throat, the disease crept upward from the nares, through the nasal duct and lachrymal sac, and extended to the palpebral conjunctiva. Her recovery, though slow, was complete.

Dr. Barnes went on to say that he did not wish to represent cubebs as a specific in diphtheria, but simply to show that in his experience it had stood the test of three successive epidemics of the disease, and always given excellent results. Much depended, he thought, on the mode of administration. Trousseau, Trélat and Robinson contended that the remedy should be given in powder; but the dose of powdered cubebs was so large that in the majority of cases it was very difficult to give, while in many it was entirely impossible, as the fine particles of powder would lodge in the throat and give rise to irritation and cough. It was also of the greatest importance that the drug should be pure and fresh, and he had little confidence in any fluid extract more than three months old. When a thoroughly good article was used, its effects were sometimes marvelous; the membrane being thrown off in from twenty-four to forty-eight hours, having a healthy granulating surface or a secondary membrane much less formidable in appearance than the first. In addition, the breath lost much of its fœtor, deglutition became more easy, and convalescence was soon established.

At the commencement of the epidemic he used the atomizer faithfully, running through almost the entire range of local applications recommended in diphtheria; but as the cases multiplied, it became impossible to carry out local treatment in many, and he found that patients living at a distance in whom this was not attempted did quite as well (if not better), as the others. This led him gradually to discontinue local treatment entirely, and a simple gargle of lemon-juice and water was generally all that was required in this direction. He regarded the inhalation of strong solutions as unadvisable, on account of the danger of their entering the larynx, trachea and bronchi, and thus doing an amount of harm that would counterbalance any good done by their application to the fauces. Again, the use of the probang was very apt to nauseate children, and if they were young and timid they would expend an amount of strength in struggling against such applications, which they could ill afford to lose. The membrane was not the disease itself, and it could only kill by acting mechanically, just as any other foreign substance would if present in sufficient quantity in the air-passages. It was an excreted substance, which had done its worst when its elements were in general circulation, and it was powerless for further mischief, except as an obstruction. It would, of course, be best, he continued, to remove a mass of putrefying membrane that was blocking up the larynx and poisoning the breath if it could be taken away without disturbing the patient too much; but, as a rule, any measure that exhausted him was to be carefully avoided.

At the same session Dr. J. Lewis Smith presented a paper on "Diphtheria of the New-born and Sepsis of the New-born as observed in the New York Infant Asylum and New York Foundling Asylum," a portion of which he had already read before the Section on Pædiatrics of the Academy of Medicine. In the cases of five of the new-born which had come under his observation he stated that the infection usually entered the system through the umbilicus, and was usually microbic in character. There were, however, three classes of cases. The first were those in which an umbilical phlegmon had resulted from the umbilical ulceration, constituting the affection often designated as erysipelas by the older writers. In two such cases at the New York Infant Asylum diphtheritic deposits were also present. Both of these cases terminated fatally, but some of the others recovered. In this group of cases the infection was transmitted mainly through the lymphatics. The second class included those in which the poison was transmitted through the umbilical vessels, especially the vein, and the third class those which were infected by channels other than the umbilicus, such as the lungs, the skin, etc.

It had been observed by Trousseau, he said, that infantile erysipelas was most frequently seen in hospital wards in which puerperal fever was present, and in such cases as these would no doubt now be recognized as due to sepsis. Of five cases of diphtheria in new-born infants only one recovered, while more of the mothers had the disease.

In the course of the paper Dr. Smith referred to an epidemic which occurred in the New York Infant Asylum, and which seemed to be due to the poisonous atmosphere of the lying-in-wards of the hospital. An examination of the air by Drs. Prudden and Cheeseman revealed the preence of multitudes of disease germs, and it was a significant fact that even, after the wards had been thoroughly fumigated with sulphure (twice the quantity of sulphur recommended by the New York Board of Health, being employed for this purpose), numerous disease germs, could still be found and cultivated. The best plan of disinfecting such rooms and hospital wards, Dr. Smith believed to be by simply washing the floor, ceiling, furniture, etc., with solution of bichloride of mercury, and he also thought that during the progress of a case of diphtheria or other contagious diseases it was of service to keep a solution of car-

bolic acid and other disinfectants constantly boiling, or at least simmering, in the sick-chamber. When such a plan was adopted the physicians and others in attendance were less likely to convey the contagion to others in their clothes than if no such precaution was adopted.

Dr. Smith having stated, in reply to a question from Dr. E. H. Squibb, that no water was employed at the time that the sulphur fumigation of the hospital wards was made, Dr. Squibb said that in using sulphur for this purpose the presence of moisture was always regarded as essential. It was sometimes advised that the walls and floor should be washed and left wet, but he thought it was much better that water should be kept boiling in the room at the same time that the sulphur was being burned. In this way a more complete oxidation of the sulphurous acid could be secured, and it was only in the nascent state that this, like the chlorine group and other similar agents, become effective as antiseptics.

At the afternoon session an interesting discussion on "Surgical Aid in the Treatment of Pulmonary Disease," took place.

It has been decided to remove the Bloomingdale Asylum (the insane department of the New York Hospital) to the vicinity of White Plains, Westchester County, where the Hospital Society owns a suitable tract of land. Streets will be cut through the Bloomingdale property, and the greater part of it will be sold in city lots, thus throwing open one of the finest districts for private residences on Manhattan Island; but the John C. Green memorial hall, the finest of the asylum buildings, will be allowed to remain, and will be converted into a general emergency hospital.

P. B. P.

LETTER FROM BOSTON.

(FROM OUR OWN CORRESPONDENT.)

The Massachusetts Medical Society: One Hundred and Seventh Anniversary.

(*Concluded from Vol. X, p. 816.*)

Membership in the Society—Physical Education in the Schools—Postural Treatment of Constipation—Surgery of Malignant Growths—Sublimate as a Disinfectant—The Annual Discourse.

Second Day—Wednesday, June 13.—President Gage opened this, the annual meeting, and the report of the proceedings of the last annual meeting was read. The Society now numbers 1,690 members. During the year 82 new members were admitted and 33 old members died. The finances of the Society were shown to be in a satisfactory condition.

The Society took an important step in concurring with the action of the Councillors in the repealing of a joint resolution, which has hitherto prevented even the presentation for examination for admission to the Society of any person not a graduate of certain medical schools approved and recognized by the Society. Under the change, therapeutics is left out of consideration, and a graduate of any reputable school is at liberty to present himself to the Censors to show what he knows if he has renounced the doctrines disapproved by the Society.

An interesting report was submitted from the special committee appointed at the last annual meeting to investigate the subject of "Physical Education in the Schools." This was read by Dr. C. F. Withington. After showing what has been done by certain other cities in this direction, as well as how little has been done in Massachusetts, the report said that the matter of instruction in physical culture is one of great importance, and this will require the employment of persons who are qualified by study and experience to adapt the work to the needs of the pupils. There is no reason why the regular teachers in the schools cannot, after being instructed in the principles and practice of the science, carry on the work of their own classes under the oversight of a general supervisor of physical culture, in much the same way that some of the teaching of music in our schools is now carried on. This will make the expense of the movement, after the first, comparatively light. The report was adopted, and it was voted to send a copy to the State Board of Education.

Dr. E. T. Williams, of Roxbury, read a paper on "Postural Treatment of Constipation." The writer thought that constipation was frequently aggravated, if not caused, by a faulty and unnatural position at stool. Similar to labor, the act of defecation is chiefly the result of the action of the diaphragm and of the abdominal muscles. Contrast the action of the bowels of a man seated on a comfortable seat with his newspaper and cigar, and of a man in the woods away from all such conveniences. Compare the attitude of all animals in the act of defecation. The stooping position is correct. No seat at all would be best for men, and for women the use of the chamber would be good.

Dr. M. H. Richardson read a paper on "The Surgical Treatment of Malignant Growths," which he had very carefully prepared from a great many statistics. The earlier an operation is performed the safer it is, and then the operation should be most free for thorough removal. It is generally admitted that malignancy is local and not general. Lack of success is due to (*a*), insufficient excision of the growth; and (*b*), insufficient attention to the glands, lymphatics, etc. Enlarged glands generally contraindicate an operation, yet even then we may sometimes operate. The order of fatality is for operation for, 1, lymphosarcoma; 2, melanotic sarcoma; 3, sarcoma of tongue and tumors of; 4, testicle; 5, breast; 6, face; 7, hip;

8, neck; 9, jaw; 10, penis; and 11, extremities.

Dr. W. B. Hills, of Cambridge, read a paper on "The Value of Corrosive Sublimate as a practical Disinfectant." The author said that disinfection is now based on the presence of microörganisms, and hence disinfectants are only those substances which will destroy the vitality of the microörganisms. The hypochlorites are efficient on account of their oxidizing power, and this destroys other organic substances as well as the germs. Previous to 1880 corrosive sublimate had not been shown experimentally to possess the power. Koch says 1:5,000 aqueous solution will kill almost all germs, and 1:10,000 will destroy all of them. 1:1,000,000 restrains partially the growth of spores of the anthrax bacillus, and 1:300,000 absolutely restrains them. Corrosive sublimate is now at the head of the list of the disinfectants recommended by the Committee on Public Health. Its power, however, varies with the substances acted upon, being greatest for aqueous solutions and least for albuminous, since there is found an insoluble albuminate of mercury. It is true that some of the germs must be confined between the particles of this, but they are not destroyed and may become free again. Hence, for disinfection, corrosive sublimate must be used in excess, *i. e.*, allowance must be made for the chemical change. It is, moreover, destructive to lead pipes, and hence should not be disposed of through them. It may be used to wash woodwork, furniture, etc., and clothes not stained with excreta (which are albuminous), but it is absurd to use it for large quantities, *e. g.*, vaults, cesspools, etc. The excreta should be disinfected before going into the vaults. The dangers of poisoning are very slight; for the solutions are so dilute and the taste is bad. It is, however, risky if not dangerous to use so much in sprinkling the streets, which may rise again as dust.

In reply Dr. S. H. Durgin, Chairman of the Boston City Board of Health, said that only a light sprinkling of a dilute solution is used in the streets, and an hour or so later this is swept up and carried away. Hence it cannot get soaked into the ground, and the subsequent dangers are very slight, if they exist at all.

Delegates were then introduced from neighboring States, and at 12 o'clock, according to the usual custom, the hall doors were locked, and the *Annual Discourse* was given by Dr. B. Joy Jeffries, of Boston, who in brief said that: It is very generally agreed that the lawyer, the minister, the squire and the physician do not hold the same relation to the community as they formerly did. As that position was one of trust and confidence, we should study the causes that have broken it down, and correct it if possible. If the community judge the whole from a part, it is the duty of those faithfully striving not to have their labors misjudged and injured. For this there are many causes: Formerly there was less diffusion of knowledge, and so, too, less diffusion of falsehood.

When the physician possessed more knowledge, more education than those about him, he was respected for these as he should have been; but now many have outstripped him, and the doctor finds his level given by his education and refinement. Good breeding and good education are not now, as formerly, the natural attributes of those legalized by a diploma. The public recognize that medicine is largely entered into as a trade or a business, and that many of its members hold degrees and diplomas purchased of the mills, legalized, it is true; but so are the dram-shop and the saloon legalized. But law is not justice. Medicine can only recover its former just position when the world is forced, by its existence, to recognize that to be a graduate of a good medical school means to have the education of our best universities in addition. The physician must be, can be and will be a man of science. As such, we can ally ourselves with the great body of men striving for knowledge and seeking truth. From the lack of this, a large part of our profession is not distinguishable from the man of business or trade.

Are we not bound in honor to do all in our power to bring up the standard of education and the standard of professional requirements in our calling? It would be a good thing for the world and our profession if nine-tenths of the medical colleges were swept away, and what was good in them gathered into a few great medical universities; placed where teaching and study could best be carried out. Must we recognize an uneducated man merely because he has a diploma? Shall we simply avail ourselves for gain of the laity's ignorance of the subjects we are familiar with, their passions, prejudices, superstitions and unfathomable credulity? There is no limit to human credulity in medicine, and hence it is easy to fool them, and hence is the secret of the success of quacks. Although legal to take this advantage, it is not justice.

We know all about the quack and pretender, licensed or unlicensed, and we simply assist in cheating the community, become *particeps criminis*, by in any way *seeming* even to recognize him professionally or socially. Next to honesty, true moral courage pays the best in the world in the long run. The tendency to compromise is dangerous, especially in this community.

The question of our social position is a delicate one. Our professional calling *should* render us the social equals of any. It has to contend with rank and title and office, and it speaks well for our calling that it has wrung even toleration from them. This it has done only by showing superiority in scientific attainment and hard work, in seeking and accumulating knowledge, which is power. Cultivation means refinement.

Our profession cannot contend with what is called business in the accumulation of wealth. Even with continued health and strength, and the largest possible amount of practice, a physician in this country can never acquire, by his toil exclusively, the incomes readily made in other occupations now recognized as professions. Our calling is most essentially not a trade, but belongs to that department of man's work known as scientific or knowledge-seeking. Now, the world over, men who give themselves up to the pursuit of knowledge have been considered as worthy of only so much of this world's goods as will simply keep them bodily in a condition to work with their brains and hands in science-seeking.

Never before have there been so many men so highly educated in medicine as now. I cite as proof the papers and discussions at our society meetings, the articles published in our journals, and the respect our best men are gaining from the thorough medical scholars and lecturers of England and the Continent. Never before have we had such competent and thoroughly taught practitioners under 30 years of age. Never before have we had so much true scientific work going on in our profession. Should these men be classed with the ill-bred and half-educated graduates of the remaining nine-tenths of the medical schools of this country? Yet this is precisely the way they are at present treated and regarded by the laity, who make no distinction between one physician and another. And this by all classes of the laity, high and low, rich and poor, learned and unlearned.

The elevation of the profession has been helped by the Massachusetts Medical Society by raising its standard of requirement. But are the best schools even yet doing *all* that is needed? The success and the growing number of the polyclinics and post-graduate courses seem to prove that the student and the graduate find that there is something more to be learned.

The more a man knows outside of his profession the better physician he will be. We learn to guide and govern men and women. The idea is erroneous that the physician cannot do anything else. But there is no place in medicine for the Bohemian or the dude. As dependency is the mother of invention, so it is the father of success. Only in the elevation of the standard of our profession can our calling be replaced in the respect of the laity, at the same time completely separating us in their judgment from the bands of quacks, trade doctors, *et id omne genus*.

A unanimous vote was passed by the Society giving thanks to Dr. Jeffries for his admirable address.

After the conclusion of the address the members of the Society, of whom over 800 were present, formed a procession in the order of seniority and marched to the Hotel Vendome, where they were received by Dr. Chas. B. Porter, anniversary chairman, and the President and President-elect of the Society, Gov. Ames, Rev. E. E. Hall, Rev. Phillips Brooks, Dr. Oliver Wendell Holmes, and other distinguished professors of Harvard, and then a buffet lunch completed the festivities of the day and the one hundred and seventh anniversary of the Massachusetts Medical Society. The next annual meeting will be held on the second Wednesday of June, 1889. N.

THE TRANSPLANTING OF A RABBIT'S CORNEA INTO THE HUMAN EYE.

Dear Sir :—I have just read the article published on June 16, on the above operation, and I wonder how it could get into THE JOURNAL; for its style is certainly better suited for the columns of a newspaper than a medical journal. And whoever wrote the article seems to know very little of the literature of this keratoplastic operation; if he knew more, he probably would not have been in a hurry to report Dr. Chisolm's case. He would know, 1, that during the past 40 years rabbit's cornea has been implanted into the human cornea so many times that there is nothing new or "wonderful" about it; and, 2, that in most cases, however, the transplanted piece gradually lost its transparency, and the vision of the patient was not permanently improved. But as the operation is done for the purpose of restoring sight, it certainly is ridiculously premature to report an operation as a success a few days after it was done, when it is still undecided whether or not the graft will remain transparent.

If those who imitate Prof. von Hippel's operation would only imitate also his patience and conscientiousness, and wait for the final results of their operations, their reports would be of more scientific value. For ten years Prof. von Hippel had been trying to find a method of preserving the transparency of the transplanted cornea, and at last he succeeded in two cases which he reported last year at the meeting of the German Ophthalmological Society. But to feel warranted in reporting the result as a lasting success, he had been watching the one case twenty-one months and the other case three months after the operation. He did not operate one week before the expected meeting and then hurry there to have the success of this "wonderful" operation heralded all over the country.

There is another thing that the reporter of Dr. Chisolm's case might learn from the German professor, to-wit, modesty and moderation in stating the possibilities of the operation. Hippel himself pronounced the usefulness of his operation in its present form to be very limited, because it was applicable to those cases only in which the opacity (leucoma) covered the cornea so far that

an iridectomy could not improve the sight, but where at the same time the opacity did not extend through the *entire* thickness of the cornea. But, he said, these conditions are very rarely found; and by far the larger majority of cases in which we should like to employ corneal grafting, are *total leucomata*, where the *whole* thickness of the cornea has been transformed into opaque, cicatricial tissue; and besides in most of these cases the iris is adherent to the posterior surface of the leucoma. *In all these cases it is evident the most successful grafting, with perfect preservation of transparency of the transplanted piece, could not restore any sight on account of the posterior layer of opaque corneal tissue* (which is not removed by the operation) *and the adherent iris.*

Our anonymous writer, however, claims: "Even these restrictions, however, open this great blessing of restored sight to a large (sic!) class of persons heretofore considered hopelessly blind."

The contrast of these views needs no further comment; the one is the calm judgment of a man of experience and sober thought; the other is the result of inconsiderate haste.

Truly yours,
F. C. HOTZ, M.D.

Chicago, July 8, 1888.

MISCELLANEOUS.

A NEW DISINFECTING APPARATUS.—DR. G. VANOVERBECK DE MEYER, Professor of Hygiene in the University of Utrecht, thus describes a new disinfecting oven of his invention:

The oven consists of a metal boiler which is placed in a second, slightly larger metal boiler. The last mentioned is covered, except on its lower surface, with a non-heat-conducting material. The space between the two boilers is filled up to half the height with water. A large round opening is made at the top of the inside boiler, and in the bottom another, but much smaller opening. A metal pipe, bent at right angles, leads from the bottom hole, between the two bottom plates, to the exterior of the outer casing near its bottom. On the top of the outside boiler are pipe-holes, which can be closed by screw plugs, and are used for filling the apparatus with water, insertion of the thermometer, etc. An emptying tap, gauge and cleaning-hole are also, of course, provided. One of the four upright sides of this apparatus is occupied by a door, also with double walls, which swings on stout hinges, and is fastened with thumb-nuts or other similar fastening, a piece of suitable material being placed between the door and sides, so as to make the door tight. If the model apparatus, which (when half-filled) contains about 15 litres of water, is heated by an ordinary small gas-stove, steam will issue from the escape pipe in one hour and fifty-two minutes.

This simple machine has the following advantages: In the first place, the temperature of the inside boiler is so increased that no condensation of the steam can take place, the heat coming from the water itself, from which the steam for the disinfecting has to be generated.

In the second place, by introducing steam at the top of the apparatus and causing it to escape at the bottom, thus driving the steam in a downward direction, the advantage is obtained that the steam spreads itself in layers, and thus regularly in all parts of the inside boiler, at the same time affording the atmospheric air, which is present in the pores and meshes of the goods to be disinfected, the opportunity to escape in the natural direction (dependent on the difference in specific gravity).

Thirdly, a very slight degree of pressure, equal to a heat of 101° to 102° C., exists in my oven, owing to its peculiar construction (the height of the boiling mass of water and the fixed proportion between the sizes of the openings for the entrance and escape of the steam). The existence and maintenance of this temperature are shown by a thermometer placed in the tube through which the steam escapes.

At my request commissioners were appointed by the various Dutch ministries, the latter having a great interest in obtaining good and, at the same time, cheap disinfecting ovens, and the result of these tests have also, both thermometrically and bacteriologically, always been favorable.—*The Sanitary News*, June 9, 1888.

THE NATIONAL ASSOCIATION OF RAILWAY SURGEONS.—The preliminary meeting of this Association was held at the Palmer House, Chicago, Ill., on June 28, and was called to order by the Chairman of the Committee, Dr. C. B. Stemen, of Ft. Wayne, Ind., at 9:30 A.M., who said the principal object of the meeting was for permanent organization. The further and additional objects of the Association were to bring the surgeons of the different railroads together annually to develop this special and rapidly growing branch of surgery, to report cases, to relate experiences, to exchange views, and to discuss the best means and methods of treatment in railway injuries.

The meeting was very largely attended, nearly all the prominent railway surgeons of the country being in attendance. Sixty-three railroads were represented. The Association starts out with a membership of 600, and promises to be one of the most active surgical associations in the United States.

The Association elected the following officers for 1889:

President—Dr. J. W. Jackson, Kansas City, Mo.

First Vice-President—Dr. J. H. Murphy, St. Paul, Minn.

Second Vice-President—Dr. J. B. Murdock, Pittsburg, Pa.

Third Vice-President—Dr. W. W. Ridenour, Massillon, Ohio.

Fourth Vice-President—Dr. B. L. Hovey, Rochester, N. Y.

Permanent Secretary—Dr. C. B. Stemen, Ft. Wayne, Ind.

Corresponding Secretary—Dr. E. R. Lewis, Kansas City, Mo.

Astistant Secretary—J. H. Trussel, Alliance, Ohio,

Treasurer—Dr. R. Harvey Reed, Mansfield, Ohio.

Next place of meeting St. Louis, Mo.

EDUCATED CORPUSCLES.—"The future of preventive medicine," said Prof. Ray Lankester in the fascinating lecture which he delivered at the London institution, "is the education of the white blood corpuscle." A corpuscle is a minute cell of protoplasm which floats in the human blood. This minute creature eats and lives and flourishes and dies almost like a human being. Its special function, said the lecturer, is to eat up the poisonous element which finds its way into the blood. When a wound heals it is because these indefatigable corpuscles have found their way to the sore and have eaten away the injured part. When bacteria gets into the system the duty of the corpuscles is to go for them and eat them up. If they succeed, the patient recovers. If they are out of appetite, or the bacteria too tough a morsel for them to attack, the patient dies. Sometimes, with unconscious heroism worthy of Marcus Curtius, they purify the bodies in which they live by eating up poisonous particles and then ejecting themselves, thus sacrificing their own lives. But such heroic self-immolation is not necessary if you educate your corpuscle. His education proceeds by inocula-

tion. By accustoming your protoplasmic cell to a low diet of mildly poisonous matter, such as the vaccine lymph, it becomes acclimatized, as it were, and is strong enough to eat up without inconvenience the germs of small-pox, which would otherwise prove fatal. It is these invaluable corpuscles, which enable confirmed arsenic eaters to swallow with impunity a dose sufficient to kill six ordinary men, and Prof. Lankester is of the opinion that they can be trained so as to digest the most virulent poisons and deal with a great number of diseases.—*Pall Mall Gazette.*

HEALTH IN MICHIGAN.—For the month of June, 1888, compared with the preceding month, the reports indicate that cholera morbus and diarrhœa increased, and that pneumonia, influenza, tonsilitis, bronchitis and erysipelas decreased in prevalence.

Compared with the preceding month the temperature in the month of June, 1888, was much higher, the absolute humidity was considerably more, the relative humidity was more, the day ozone was the same, and the night ozone was less.

Compared with the average for the month of June in the nine years, 1879–1887, measles were more prevalent, and intermittent fever, remittent fever, diarrhœa, whooping-cough, tonsilitis, diphtheria and dysentery were less prevalent in June 1888.

For the month of June, 1888, compared with the average of corresponding months in the nine years 1879–1887, the temperature was slightly higher, the absolute humidity was slightly more, the relative humidity was the same, the day and night ozone were less.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of June, 1888, at 19 places, scarlet fever at 30 places, typhoid fever at 10 places, measles at 42 places, and small-pox at Detroit,

Reports from all sources show diphtheria reported at 4 places less, scarlet fever at 24 places less, typhoid fever at 4 places less, measles at 22 places less, and small-pox in the same number of places in the month of June, 1888, as in the preceding month.

LEGISLATION REGARDING POULTRY-SELLING. — The State Legislature of Massachusetts has enacted the following: 1. No poultry, except it be alive, shall be sold or exposed for sale until it has been properly dressed by the removal of the crop and entrails, when containing food. 2. Whoever knowingly sells or exposes for sale poultry contrary to the provisions of Sec. 1 of this Act, shall be punished by a fine of not less than five, nor more than fifty dollars for each offense. The Boards of Health in the several cities and towns shall cause the provisions of this Act to be enforced in their respective cities. It would have been better surely to have omitted the words, "when containing" in the first section. The entrails always contain either food or the excrete refuse of it, containing numberless microbes ready to set up putrefactive or diseased processes.—*Prophylactic.*

DEATH OF DR. A. Y. P. GARNETT.—DR. ALEXANDER YELVERTON PEYTON GARNETT, of Washington, ex-President of the American Medical Association, and for many years one of the most prominent members of the Association, died at Atlantic City, N. J., on Wednesday last. His admirable address before the Association at Cincinnati will be long remembered by those that heard it. Dr. Garnett was graduated from the University of Pennsylvania in 1841. His loss will be severely felt, not only in Washington City, but also by the whole profession. A sketch of his life will appear next week.

THE CONGRESS FOR THE STUDY OF TUBERCULOSIS, which meets in Paris on July 25–31, under the presidency of Professor Chauveau, promises to be a grand success. Delegates will attend from numerous French and foreign societies. From America delegates go from the Academy of Medicine of New York.

THE COLLEGE OF PHYSICIANS AND SURGEONS, of New York, will require hereafter examinations for admission. Henceforth the College Year will consist of a period of vacation, and a session of from eight to nine months, from October 1 to about June 15. The number of didactic lectures will not be absolutely increased. The course will be graded, and extend over three years. This, we believe, is largely due to the influence of the late Dr. C. R. Agnew.

DR. I. N. QUIMBY makes a formal, but we may say unnecessary, denial of the charges of a correspondent of the *Medical and Surgical Reporter* that his action on the Nominating Committee at Cincinnati was in obedience to his "being instructed by his delegation." It is scarcely to be supposed that any one believed the charge.

A TRAINING SCHOOL FOR MALE NURSES has been erected on the grounds of Bellevue Hospital by Mr. D. O. Mills, and presented to New York City.

THE WOMAN'S MEDICAL COLLEGE OF PHILADELPHIA will receive by bequest the scientific books and herbarium and dried plants of the late Dr. Rachel Bodley.

PROFESSOR HYRTL has endowed six scholarships in the Vienna School, to go to worthy students without means, without distinction of nationality or creed.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from June 30, 1888, to July 7, 1888.

Col. J. H. Baxter, Chief Medical Purveyor, will proceed to New York City on public business connected with the Medical Department, and on completion thereof will return to his station in Washington City. S. O. 150, A. G. O., June 29, 1888.

Major Edwin Bentley, Surgeon, retired from active service July 3, 1888, by operation of law. S. O. 153, A. G. O., July 3, 1888.

Capt. Richard W. Johnson, Asst. Surgeon, designated as medical officer for a camp of instruction in rifle practice to be established at Fisher's Island, N. Y. (near New London, Conn.), on July 2, 1888, and to continue during the months of July, August and September; and ordered to proceed to Fisher's Island in proper season and report to the commanding officer for duty. S. O. 131, Div. Atlantic, June 28, 1888.

First Lieut. Wm. D. Crosby, Asst. Surgeon, leave of absence extended one month. Par. 8, S. O. 151, A. G. O., June 30, 1888.

First Lieut. Paul Clendenin, Asst. Surgeon, leave of absence granted in S. O. 59, Dept. of Texas, June 4, 1888, extended one month. S. O. 149, A. G. O., June 28, 1888.

Official List of Changes in the Medical Corps of the U. S. Navy for the Two Weeks Ending July 7, 1888.

Surgeon A. M. Moore, ordered to naval station, New London.

P. A. Surgeon A. A. Austin, detached from "Gedney" and wait orders.

Asst. Surgeon Thomas Owens, detached from naval station, New London, and to coast survey Str. "Gedney."

Asst. Surgeon R. P. Crandall, detached from the U. S. S. "Saratoga," and to the U. S. S. "Galena."

Medical Director George Peck, placed on retired list 9th inst.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine Hospital Service, for the Two Weeks Ending June 30, 1888.

Surgeon John Vansant, granted leave of absence for ten days. June 25, 1888.

P. A. Surgeon F. W. Mead, granted leave of absence for thirty days. June 28, 1888.